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Contribution to the marine molluscan fauna of Kerguelen Islands, South Indian Ocean

Contribución a la fauna de moluscos marinos de las Islas Kerguelen, Sur del Océano Índico

Nicolás TRONCOSO*, Jackie L. VAN GOETHEM** and Jesús S. TRONCOSO*

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ABSTRACT

The present work contributes to the knowledge of the mollusc fauna of the Kerguelen Is., on the basis of a collection of the Institut Royal des Sciences naturelles de Belgique. This collection include 32 species of gastropods and 12 of bivalves collected in shallow waters of the Morbihan Bay, among the gastropods *Margarites* cf. *porcellana* and *Perissodonta mirabilis* are the most abundant, whereas among the bivalves the commonest species are *Gaimardia trapesina* and *Laternula elliptica*. Most of the species in this collection have a wide distribution, although some species are endemics of Kerguelen Is. or of the Kerguelen–Heard platform and another species circumantartic.

RESUMEN

El presente trabajo es una contribución al conocimiento de la fauna de moluscos de las Islas Kerguelen, basada en una colección del Institut Royal des Sciences naturelles de Belgique. Esta colección incluye 32 especies de gasterópodos y 12 de bivalvos recolectadas en aguas someras de la Bahía de Morbihan, entre los gasterópodos *Margarites* cf. *porcellana* y *Perissodonta mirabilis* son las especies más abundantes, mientras que entre los bivalvos las especies más comunes son *Gaimardia trapesina* y *Laternula elliptica*. La mayoría de las especies de esta colección tienen una amplia distribución, aunque algunas de ellas son endémicas de las Islas Kerguelen o de la plataforma Kerguelen-Heard y otras son de distribución circumantartica.

KEY WORDS: Molluscs, Gastropods, Bivalves, Taxonomy, Kerguelen Is., Subantarctic region.
PALABRAS CLAVE: Moluscos, Gasterópodos, Bivalvos, Taxonomía, Islas Kerguelen, Región Subantartica.

INTRODUCTION

During the second half of the 19th century and during the 20th, there were many expeditions to the Southern Ocean, resulting in a great number of taxonomic and ecological studies on molluscs. The Kerguelen archipelago fauna is well known, due to the number of collections that have been made and reported since the original report of Smith (POWELL, 1957). The benthic fauna of the Kerguelen Is. was first studied by Studer in 1889 (ARNAUD,

* Dpto. Ecoloxía e Bioloxía Animal, Facultade de Ciencias, Campus Lagoas-Marcosende, Universidade de Vigo, E-36200, Vigo, Spain.
** Institut Royal des Sciences Naturelles de Belgique, Rue Vautier 29, B-1000, Bruxelles, Belgium.

1974) and later a few works about Kerguelen were published, among them one may emphasise the works made by POWELL (1957), ARNAUD (1974) and CANTERA AND ARNAUD (1985). Following the work published by CANTERA and ARNAUD (1985), the Kerguelen and Crozet gastropods are well known, but our work provides taxonomic remarks to make's easy the identification of the Kerguelen fauna.

Kerguelen Is. are located at about 2000 km from the Antarctic continent, on the Kerguelen-Heard platform in the subantarctic waters and is composed of about 300 islands and islets (ARNAUD 1974). They are placed between the subtropical and the antarctic convergence and have a volcanic origin (CANTERA and ARNAUD, 1985). Most of the specimens were collected in the Morbihan Bay, in the oriental part of the archipelago. This work is a revision of the fauna collected by a Belgian expedition, giving taxonomic remarks of some species.

The present collection comprises 44 species of molluscs. A number of species are impossible to identify without access to the type material; for this reason these species are recorded with doubts. We follow the nomenclature of DELL (1990) and that of CANTERA and ARNAUD (1985) for the species absent from Dell's work.

MATERIAL AND METHODS

The present material was collected by C. De Broyer during January and February of 1982 during the mission Ker-82 of the Institut Royal des Sciences naturelles de Belgique (I.G. 26.482 I.R.Sc.N.B.-K.B.I.N.). Sample stations in the Morbihan Bay are represented in Figure 1 and stations situation and characteristics are included in Table I.

In the record of the material, "sp." denotes live collected material, "shell" refers to empty gastropod shells, and "valve" refers to dead bivalve shells.

Anatomical descriptions are based on preserved material and the radulae were removed by dissection and drawn with the aid of a camera lucida connected to an Olympus BX 40 microscope.

Photographs were obtained using a digital camera Olympus DP10 and processed using Microimage analysis software. Shells measurements were obtained with a electronic digital caliper, measuring the minor axis first. The major and minor specimens are separated by a dash.

SYSTEMATICS

Class GASTROPODA
Family FISSURELLIDAE Fleming, 1822
Genus *Puncturella* Lowe, 1827

Puncturella conica (Orbigny, 1841) (Fig. 2)

Rimula conica Orbigny, 1841.
Puncturella noachina (non Linn.) Watson, 1886: 42; Strebel, 1908: 79; Thiele, 1912: 234.
Puncturella conica: Powell, 1951: 86; Powell, 1957: 125; Powell, 1960:127; Arnaud, 1972: 113; Cantera and Arnaud, 1985: 32; Branch *et al.*, 1991: 55.

Material: 1 broken shell (7.5 x 3.5 x 3.6 mm), D9; 1 shell (8.13 x 5.60 x 4.05 mm), D37.

Remarks: Only two empty shells were collected agreeing in size and shell characteristics with *Puncturella conica*, which appears in BRANCH ET AL. (1991). ARNAUD (1972) records *P. spirigera* Thiele, 1912 as a synonym of *P. conica* Orbigny, 1841 and says that it only differs in the apex position, imputing it to small size of the type material of *spirigera*.

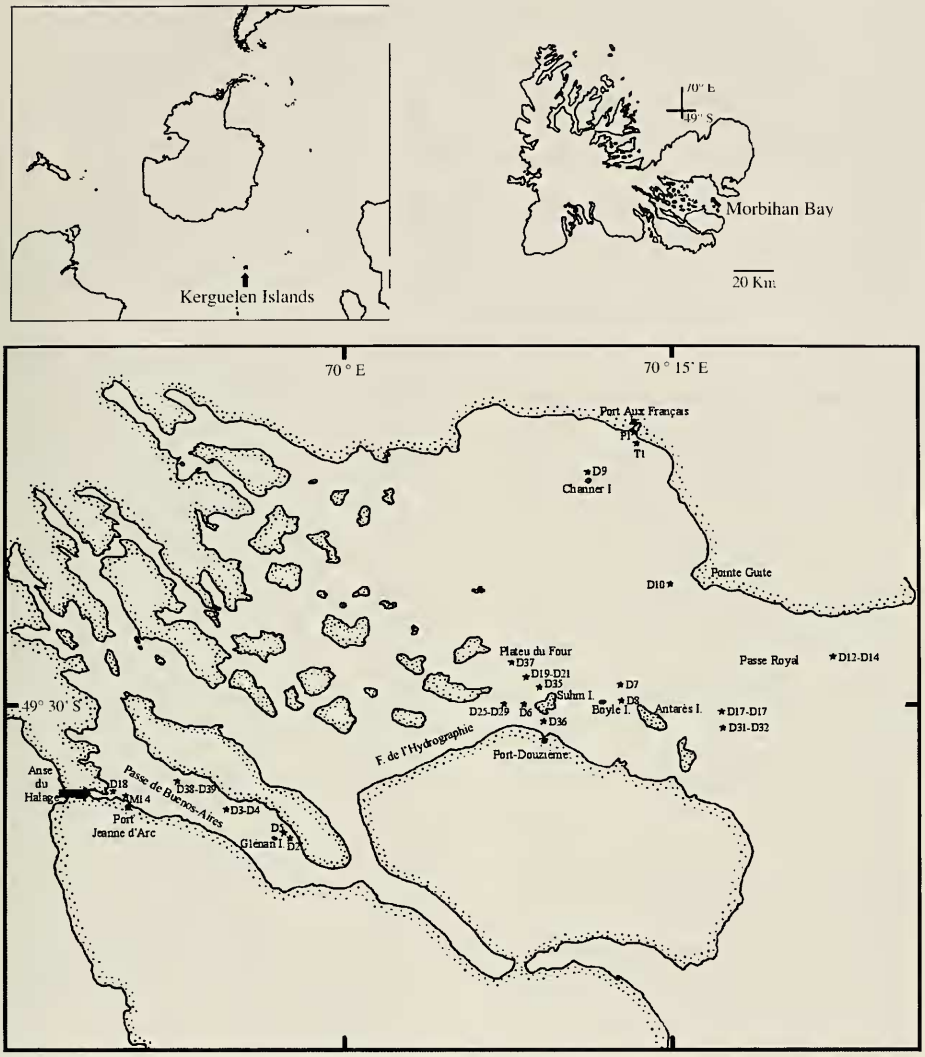

Figure 1. Sample stations in the Morbihan Bay, Kerguelen Is.
Figura 1. Estaciones de muestreo en Morbihan Bay, islas Kerguelen.

Distribution: Type localities of this species are Falkland Is. (*conica* and *falklandica*) and Kerguelen Is. (*P. analoga*). WATSON (1886 as *noachina*) finds this species at Marion, Prince Edward and Kerguelen Is. and in the Strait of Magellan. STREBEL (1908) records *P. noachina* in Berkeley Sound. POWELL (1951) records *conica* in South Georgia, Clarence, South Shetlands and Falkland Is. Later he finds this species in open sea near Kerguelen Is. (POWELL, 1957). The distribution range given by POWELL (1960) includes Strait of Magellan, Falkland, South Georgia, South Shetland and Kerguelen Is. ARNAUD (1972) finds one specimen in Adelie Land and CANTERA AND ARNAUD (1985) records this species in Crozet and Kerguelen Is. BRANCH *ET AL.* (1991) record this species in Marion and Prince Edward Is., 5-355 m.

Family TROCHIDAE Rafinesque, 1815
Genus*Margarites* Gray, 1847

Margarites cf. *porcellana* Powell, 1951 (Figs. 3, 43)

Margarella porcellana Powell, 1951: 98, pl. 5, fig. 2; Branch *et al.*, 1991: 56.

Material: 1 shell (10.0 x 11.0 mm), D2; 1 sp. (4.98 x 5.21 mm), D3-D4; 1 sp. (7.69 x 9.05 mm), D5; 1 sp. (5.72 x 6.44 mm), D6; 21 shells (7.25 x 9.18 mm – 4.14 x 4.90 mm), D9; 8 sp. (9.42 x 10.88 mm – 5.94 x 6.68 mm), D10; 9 sp. (12.35 x 13.96 mm – 10.98 x 13.61 mm) and 10 broken shells, D18; 1 shell (9.37 x 10.01 mm), D19-21; 10 sp. (8.45 x 9.7 mm – 3.1 x 3.5 mm) and 1 shell (9.51 x 10.13 mm), D25-D29; 18 sp. (8.75 x 10.36 mm – 2.5 x 3.0 mm), D35.

Remarks: DEAMBROSI (1969 in DELL 1990) was the first author who separated the genus *Margarella* and *Margarites* on the basis of the first lateral tooth, including in *Margarella* the species with the first lateral tooth large. This author shows that the first lateral tooth of other species is rudimentary and takes this character to separate the genus *Margarites* and *Margarella*. Later, Dell (1990) remarks that *Margarella* Thiele, 1893 and *Margarites* Gray, 1847 must be considered synonyms, on the basis of the *expansa* radula, the type species of *Margarella*, which belongs to the first group, with a first lateral teeth large. Individuals of this species found in this collection have a radula with the first lateral tooth well developed (see fig. 43), belonging to this genus. On the basis of shell characters we think that these individuals belong to the species *M. porcellana*. These individuals have a uniformly white shell with a white columelar callus, four and half whorls and the suture adpressed, these characters agree with the description of the species given by POWELL (1951). On the other hand the shell measurements are larger in our individuals than in the type material. In this collection we found individuals that reach 12.35 mm x 13.96 mm while the individuals described by POWELL (1951) were 8.0 mm x 7.0 mm. Moreover the columelar callus of the Kerguelen individuals do not reach the outer lip as in the type material. These two differences make us record this species with doubts. Unfortunately the radula of *Margarella porcellana* is not known and because of that it is not possible to compare with our radula.

Distribution: The type locality is off Marion I. POWELL (1951) describes this species with material found in three stations off Marion I. in a bathymetric range of 97-113 m, BRANCH *ET AL.* (1991) record this species from Marion and Prince Edward Is. at depths of 10-151 m, as rare to abundant. A total of 48 individuals were found in mud ,sand and algae from depths of 10-50 m.

Margarites violacea (King and Broderip, 1831) (Figs. 4, 44)

Margarita violacea (King and Broderip, 1831)
Photinula (*Margarella*) *violacea*: Strebel, 1908: 72.
Margarella violacea: Powell, 1951: 96; Powell, 1957: 125; Powell, 1960: 131; Cantera and Arnaud, 1985: 37.

Material: 1 shell (9.20 x 9.94 mm), D5; 2 sp. (8.47 x 10.19 mm; 6.01 x 6.66), D6; 2 sp. (8.95 x 10.18 mm; 4.16 x 4.92 mm), D8; 1 sp. (10.55 x 11.40 mm), D12-D14; 1 shell (8.54 x 9.55 mm), D16-D17; 1 sp. (10.52 x 11.96 mm), D19-D21; 7 sp. (9.37 x 8.81 mm – 3.39 x 3.73 mm), D25-D29; 2 sp. (7.29 x 8.68 mm; 5.98 x 7.90 mm) and 1 deteriorated sp., D31-D32; 7 sp. (6.53 x 7.55 mm – 5.27 x 6.36 mm), D35.

Remarks: We follow Dell's nomenclature, which considers *Margarella* Thiele, 1893 and *Margarites* Gray, 1847 synonyms. DEAMBROSI (1969 in DELL, 1990) showed that the first lateral tooth of *violacea* was large, including this spe-

Table I. Place, date and characteristics of the sample stations.
Tabla I. Lugar, fecha y características de las estaciones de muestreo.

Station	Place	Date	Depth (m)	Bottom	Sample device
D2	Passe de Buenos-Aires, NW. Glénan I.	19/01/1982	23	Mud	Dredge
D3-D4	Passe de Buenos-aires.	19/01/1982	42	Mud, spicles and serpulids tubes	Dredge
D5	Passe de Buenos-Aires, NW. Glénan I.	19/01/1982	23	Mud, spicles and Macrocystis	Dredge
D6	S. Suhm I.	19/01/1982	40	Mud and spicles	Dredge
D7	NW. Boyle I.	19/01/1982	65	Mud	Dredge
D8	N. Boyle I.	19/01/1982	48	Mud	Dredge
D9	Port aux Français-Channer I.	28/01/1982	30	Mud	Dredge
D10	Pointe Guite	28/01/1982	30	Mud, sand and Macrocystis	Dredge
D12-D14	Passe Royale	28/01/1982	30	Mud, sand and Macrocystis	Dredge
D16-D17	N. Antarès I.	28/01/1982	50	-	Dredge
D18	Anse du Halage-Port Jeanne d'Arc	29/01/1982	10	Mud	Dredge
D19-D21	SW. Suhm I.	29/01/1982	40-50	-	Dredge
D25-D29	S. Suhm I.	10/02/1982	30-50	Mud and Rhodophyces	Dredge
D31-D32	N. Antarès I.	23/02/1982	50	Mud	Dredge
D35	SW. Suhm I.	23/02/1982	25	Macrocystis and Rhodophyces	Dredge
D36	Fosse de l'Hrographie. Between Suhm I. and Port Douzième	23/02/1982	90	Mud	Dredge
D37	Plateu du Four.	23/02/1982	25	Sand, Pebble and gravel	Dredge
D38-D39	Passe de Buenos-Aires.	1/03/1982	35	-	Dredge
M14	Anse du Halage-Port Jeanne d'Arc	10/02/1982	0,1-0,4	Sand	Hand net
P1	In front Biomar laboratory	18/01/1982	-	Over Macrocystis	Hand net diving
T1	Port aux Français, in the shore of Pointe des Cormorans	17/02/1982 18/02/1982	15	Stomachic contens	Baited trap

cies in the genus *Margarella* that later DELL (1990) considers synonym of *Margarites*. There are two species of *Margarella-Margarites* recorded in the Kerguelen Is.; *expansa* with a ligth olivaceus coloration and a maximum size of 20 mm and *violacea* that it is close to *expansa* but differs in a more elevated spire, honey colour and a minor size (max. 12 mm). DELL (1990) points out that *expansa*, the type species of *Margarella*, has the first lateral tooth rudimentary, whereas *violacea* has the first lateral tooth large. Our specimens is honey-coloured with a white callus and its radula have the first lateral tooth large (see fig. 44), for these reasons we have included them in *violacea*.

Distribution: The type locality is Strait of Magellan. STREBEL (1908) records this species in the magellanic region. POWELL (1951) found *violacea* in the magellanic region and Falkland Is. and later records this species with doubts in Kerguelen Is. (POWELL, 1957). CANTERA and ARNAUD (1985) found death shells of *M.violacea* in Crozet. In this collection there are 23 individuals found in mud, sand and algae from depths of 23-50 m.

Family PATELLIDAE Rafinesque, 1815
Genus *Nacella* Schumacher, 1817

Nacella cf. *mytilina* (Helbling, 1779) (Fig. 5)

Patella mytilina Helbling, 1779
Nacella mytilina Powell, 1951: 80; Powell, 1957: 126; Powell, 1960: 128.

Material: 1 sp. (12.50 x 8.99 x 4.0 mm), P1.

Remarks: Only one thin individual with brown ovate shell and anterior central apex has been found. It has fine concentric grown lines. POWELL (1951) restricted the genus to "the thin, ovate shells with anterior apex". Moreover this individual has the gill cordon continuous and the foot encircled by a scalloped epipodial ridge, exactly like the genus description made by POWELL (1951). Our material presents these shell characteristics, although we cannot access to the description and figures of this species.

Distribution: The type locality is Strait of Magellan and its distribution includes Falkland and Kerguelen Is. POWELL (1951) points out that "*Nacella* seems to be restricted to the subantarctic from the Magellan region to the Kerguelen". THIELE (1912) records this species in Observatory Bay in Kerguelen. Our specimens was found in *Macrocystis* from Morbihan Bay in Kerguelen.

Nacella (*Patinigera*) *edgari* (Powell, 1957) (Fig. 6)

Patinigera (*Patinella*) *fuegiensis* Smith, 1877 (non Reeve, 1855), 180, pl. 19, figs. 14, 14a.
Nacella (*Patinigera*) *fuegiensis*: Thiele, 1912: 234.
Patinigera fuegiensis edgari Powell, 1957: 127, pl. 2, fig. 5 and text figs. B; Powell, 1960: 129.
Nacella (*Patinigera*) *edgari*: Cantera and Arnaud, 1985: 35.

(Right page) Figure 2: *Puncturella conica*, 8.1 x 5.6 mm. Figure 3: *Margarites* cf. *porcellana*, 8.9 x 10.8 mm. Figure 4: *Margarites expansa*, 6.1 x 7.1 mm. Figure 5: *Nacella* cf. *mytilina*, 12.50 x 8.99 x 4.0 mm. Figure 6: *Nacella* (*Patinigera*) *edgari*, 12.5 x 9.0 x 3.5 mm. Figure 7: *Nacella* (*Patinigera*) *delicatissima*, 12.90 x 9.15 x 3.6 mm. Figure 8: *Iothia* cf. *coppingeri*, 7.0 x 4.0 x 2.5 mm. Figure 9: *Pellilitorina setosa*, 10.2 x 6.8 mm. Figure 10: *Eatoniella k. kerguelenensis*, 2.8 x 1.7 mm. Figure 11: *Banzarecolpus austrina*, 11.5 x 4.1 mm. Figure 12: *Eumetula ornata*, 15.6 x 5.7 mm. Figure 13: *Perissodonta mirabilis*, 23.81 x 36.05 mm. Figure 14: *Kerguelenatica bioperculata*, 9.5 x 10.1 mm. Figure 15: *Falsilunatia* cf. *delicatula*, 13.6 x 15.2 mm. Figure 16: *Falsilunatia* cf. *xantha*, 11.79 x 12.86 mm. Figure 17: *Sinuber sculpta*, 20.0 x 17.0 mm. Figure 18: *Marseniopsis* cf. *pacifica*, 14.0 x 11.0 mm. Figure 19: *Neobuccinum eatoni*, 23.5 x 15.6 mm.
(Página derecha) Figura 2: Puncturella conica, *8,1 x 5,6 mm. Figura 3:* Margarites *cf.* porcellana, *8,9 x 10,8 mm. Figura 4:* Margarites expansa, *6,1 x 7,1 mm. Figura 5:* Nacella *cf.* mytilina, *12,50 x 8,99 x 4,0 mm. Figure 6:* Nacella (Patinigera) edgari, *12,5 x 9,0 x 3,5 mm. Figura 7:* Nacella (Patinigera) delicatissima, *12,90 x 9,15 x 3,6 mm. Figura 8:* Iothia *cf.* coppingeri, *7,0 x 4,0 x 2,5 mm. Figura 9:* Pellilitorina setosa, *10,2 x 6,8 mm. Figura 10:* Eatoniella k. kerguelenensis, *2,8 x 1,7 mm. Figura 11:* Banzarecolpus austrina, *11,5 x 4,1 mm. Figura 12:* Eumetula ornata, *15,6 x 5,7 mm. Figura 13:* Perissodonta mirabilis, *23,81 x 36,05 mm. Figura 14:* Kerguelenatica bioperculata, *9,5 x 10,1 mm. Figura 15:* Falsilunatia *cf.* delicatula, *13,6 x 15,2 mm. Figura 16:* Falsilunatia *cf.* xantha, *11,79 x 12,86 mm. Figura 17:* Sinuber sculpta, *20,0 x 17,0 mm. Figura 18:* Marseniopsis *cf.* pacifica, *14,0 x 11,0 mm. Figura 19:* Neobuccinum eatoni, *23,5 x 15,6 mm.*


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Material examined: 2 broken shells, D5; 1 sp. (12.5 x 9.0 x 3.5 mm) and 2 broken shells, D7; 1sp. (30.08 x 21.20 x 9.5 mm) and 3 shells (38.58 x 29.01 x 8.8 mm – 11.93 x 9.13 x 5.0 mm), D9; 3 broken shells, D18; 8 sp. (43.28 x 32.45 x 13.1 mm – 19.90 x 13.82 x 4.91 mm) and 1 shell (29.5 x 21.6 x 7.0 mm), D25-D29; 3 sp. (42.50 x 31.8 x 17.9 mm – 13.2 x 8.9 x 4.2 mm), P1.

Remarks: Southern limpets are very difficult to identify, POWELL (1951) records *Patinigera* as a genus in which the species *fuegiensis edgari* is included. He points out that *Nacella* and *Patinigera* "have the gill cordon continuous and the foot encircled by a scalloped epipodial ridge" and characterized *Nacella* by the "thin, ovate shells with anterior apex", while the "shell in *Patinigera* has a subcentral apex and is of normal shape and solidity". However here, we follow the nomenclature of CANTERA and ARNAUD (1985) considering that *Patinigera* is only a subgenus of *Nacella*. Our individuals agree with description of *P. fuegiensis edgari* given by POWELL (1957), who revised a large series of Kerguelen specimens.

Distribution: The type locality is Royal Sound in Kerguelen Is. POWELL (1957) records this species in several BANZARE localities and also from Port Jeanne d`Arc, CANTERA and ARNAUD (1985) point out that this species is very abundant in the Morbihan Bay and find dead shells in Crozet Is. This species is known only from Kerguelen in a depth range of 8 to 67 m, although it is more abundant in 8 to 30 m (CANTERA and ARNAUD, 1985). In the present collection there are specimens collected in muddy bottoms and algae in Kerguelen from depths of 10-65 m.

Nacella (*Patinigera*) *delicatissima* (Strebel, 1907) (Fig. 7)

Patinella delicatissima Strebel, 1907; Strebel, 1908: 80, pl. 1, figs. 75-75a.
Patinigera delicatissima Powell, 1951: 82; Powell, 1960: 129.
Nacella (*Patinigera*) *delicatissima* Cantera and Arnaud, 1985: 34.

Material: 1 sp. (19.30 x 14.92 x 3.1 mm) and 1 shell (12.90 x 9.15 x 3.6 mm), D12-D14.

Remarks: This small species of *Nacella* has a bronze coloured shell with brown spots externally and a nacreous interior. It is a thin species with delicately squamose ribs (POWELL, 1951). Our specimens reach 19 mm of length and have a low profile (3.1 mm) as Powell remarks in his work (POWELL, 1951). CANTERA and ARNAUD (1985) give for this species a maximum length of 23 mm and record it in Morbihan Bay.

Distribution: The type locality is Strait of Magellan. Since Strebel's description, the same author records this species from Falkland Is. (STREBEL, 1908). Afterwards POWELL (1951) records it in many Falkland localities and CANTERA and ARNAUD (1985) find *delicatissima* in Kerguelen and Crozet Is., a new record for this species. Our material come from Morbihan Bay in Kerguelen and was dredged in mud and sand with *Macrocystis* from a depth of 30 m.

Family LEPETIDAE Dall, 1869
Genus *Iothia* Gray, 1857

Iothia cf. *coppingeri* (Smith, 1881) (Fig. 8)

Tectura (*Pilidium*) *coppingeri* Smith, 1881: 35, pl. 4, figs 12, 12a.
Pilidium coppingeri: Strebel, 1908: 83.
Lepeta coppingeri: Thiele, 1912: 183, 233, 257; Hedley, 1916: 41; Powell, 1951: 84; Powell, 1957: 128; Powell, 1960: 129; Arnaud, 1972: 114, fig. 1 (radula); Cantera and Arnaud, 1985: 35; Linse, 1997: 27.
Iothia coppingeri: Egorova, 1982: 12, figs. 73,74; Dell, 1990: 105, figs. 185, 186; Linse, 1998: 883.

Material: 1 deteriorated shell (7.0 x 4.0 x 2.5 mm), D5.

Remarks: Our specimen is refered to *I. coppingeri* according to its radial sculpture and shell profile, but its scales have disappeared, probably due to the erosion.

Distribution: The type locality is Sandy point, Patagonia. *I. coppingeri* is a widely distributed species, with circumantarctic distribution (DELL 1990). It is recorded from Falkland Is. (STREBEL, 1908; POWELL, 1951), Gauss Station (THIELE, 1912), Commonwealth Bay (HEDLEY, 1916), Ross Sea (POWELL, 1951; DELL, 1990; CATTANEO-VIETTI *ET AL.*, 2000), Kerguelen and Crozet Is. (POWELL, 1957; CANTERA and ARNAUD, 1985), Commonwealth Bay and Enderby Land (POWELL, 1958), Adelie Land (ARNAUD, 1972), Davis Sea (EGOROVA, 1982) and Beagle Channel (LINSE, 1997; LINSE and BRANDT, 1998). Our shell was dredged in mud with organogenic components (spicles and *Macrocystis*) from 23 m depth.

Family LITTORINIDAE Gray, 1840
Genus *Pellilitorina* Pfeffer, 1886

Pellilitorina setosa (Smith, 1875) (Fig. 9)

Littorina setosa Smith, 1875: 69.
Pellitorina setosa: Strebel, 1908: 50.
Pellilitorina setosa: Thiele, 1912: 235; Powell, 1951: 109; Powell, 1960: 135; Arnaud and Bandel, 1979: 218, fig. 5, pl. 2, figs. 4,6-8, pl. 3, figs. 7-10, pl. 4, figs. 6-10; Cantera and Arnaud, 1985: 41; Dell, 1990: 108, fig. 181.

Material: 16 shells (7.26 x 10.75 mm – 4.24 x 5.84 mm), D9; 1 shell (5.0 x 7.0 mm), D10; 2 sp. (4.5 x 5.5 mm; 2.5 x 3.2 mm), D35.

Remarks: The genus *Pellilitorina* has a typical radula, different of the others members of the family. POWELL (1951) described *Pellilitorina*'s radula "with a broad, shallow-based central tooth bearing five cusps, the middle one strongest, laterals with three strong cusps, marginal foliated and with several denticles". This radula corresponds with large, globose shells with only a narrow umbilical perforation and an epidermis covered with hair-like processes (POWELL 1951). Later ARNAUD and BANDEL (1978) point out that the Powell's definition differs from the original definition in that the outer marginal tooth of this genus shows three cusps and show that the greatest diference of the *Pellilitorina* radula is the central tooth without lateral wings. Our specimens have a radula with a central tooth with five cusps, two laterals teeth with three cusps and a lateral one foliated, and can be placed easily in the genus *Pellilitorina*. Two species of *Pellilitorina* were recorded in Kerguelen Is.; *P. setosa* and *P. pellita*. Shell and radular characteristics place our specimens in *Pellilitorina setosa* but since they are juvenile their shell characteristics are least reliable. ARNAUD and BLANDEL (1978) show a figure of a juvenile shell that agree with our specimens in shells characteristics.

Distribution: The type locality is Swain's Bay, Kerguelen Is. STREBEL (1908) records in Cumberland Bay and later THIELE (1912) records it in Observatory Bay. A study of the radula of the southern Littorinidae was made by POWELL (1951). This author showed the radula of *P. setosa* and records it in South Georgia and off Bouvet I. CANTERA and ARNAUD (1985) collect this species in Crozet and Kerguelen Is. and included within the distribution range Heard and South Orkneys. DELL (1990) points out that it is a common species in South Georgia, South Orkneys, Heard and

Kerguelen Is. and suggests that its restricted range around the continent is probably due to the lack of stable shallow-water habitats. We found this species in mud, sand and algae at Morbihan Bay, from depths of 25-30 m.

Family EATONIELLIDAE Ponder,1965
Genus *Eatoniella* Dall, 1876

Eatoniella kerguelenensis kerguelenensis (Smith, 1875) (Figs. 10, 43)

Eatonia kerguelenensis Smith, 1875: 70.
Eatoniella kerguelenensis: Thiele, 1912: 235, pl. 14, fig. 26, pl. 16, fig. 1 (radula); Hedley, 1916: 46; Powell, 1957: 129; Arnaud, 1972: 118, fig. 9, 12.
Eatoniella kerguelenensis kerguelenensis: Powell, 1960: 138; Ponder, 1983: 11, figs. 2a, 7 e-f; Cantera and Arnaud, 1985: 42.

Material: 24 sp. (1.98 x 3.2 mm – 0.5 x 0.5 mm), D35.

Remarks: PONDER (1983) points out the need for the presence of operculum and radula to assure the identification of this species. CANTERA and ARNAUD (1985) point out a maximum length of 4.5 mm in specimens found in Kerguelen and 4.0 mm in Crozet. Our specimens do not exceed 3.2 mm, have a pale yellowish operculum that it is very close to the figure 12 of ARNAUD (1972). The radula is the typical of genus, it has a central tooth with five small cusps, two lateral teeth, the first with five cusps and the second with two, and one marginal tooth with several denticles. These radular characteristics agree with the radula of *E. kerguelenensis kerguelenensis* as figured by other authors (THIELE, 1912; ARNAUD, 1972; PONDER, 1983).

Distribution: The type locality is Royal Sound, Kerguelen Is. There are four subspecies of *Eatoniella kerguelenensis*. *E. k. regularis* and *E. k. contusa* have a western Antarctic distribution, *E. k. chiltoni* from New Zealand and the New Zealand subantarctic Is., and *E. k. kerguelenensis* is confined to Kerguelen Is. (PONDER, 1983). *E. k. kerguelenensis* has been recorded from Observatory Bay (THIELE, 1912), Commonwealth Bay (HEDLEY, 1916), in BANZARE localities at Kerguelen Is. (POWELL, 1957) and Pointe Geologie archipelago (ARNAUD, 1972). All these authors recorded it as *E. kerguelenensis*. PONDER (1983) renames the species *E. kerguelenensis kerguelenensis* and CANTERA and ARNAUD (1985) found this species in some stations of Kerguelen and Crozet Is. Our specimens come from Morbihan Bay in Kerguelen and was collected in algae from 25 m depth.

Family TURRITELLIDAE Woodward, 1851
Genus *Banzarecolpus* Powell, 1957

Banzarecolpus austrina (Watson, 1881) (Fig. 11)

Turritella austrina Watson, 1881: 224; Watson, 1886: 470, pl. 29, fig. 2; Thiele, 1912: 240.
Banzarecolpus austrina: Powell, 1957: 131; Powell, 1960: 141; Cantera and Arnaud, 1985. 48; Branch *et al.*, 1991: 57.

Material: 1 shell (3.5 x 8.2 mm), D8; 5 sp. (4.47 x 11.61 mm – 2.98 x 8.22 mm) and 16 shells (5.2 x 13.5 mm - 2.5 x 7.1 mm), D9; 1 shell (5.0 x 15.0 mm), D10; 2 shells (4.07 x 10.35 mm; 2.56 x 6.86 mm), D16-D17; 3 shells (4.0 x 10.0 mm – 3.0 x 8.0 mm), D31-D32.

Remarks: Two species of *Banzarecolpus* are known in Kerguelen Is., *B. austrina* with a maximum length of 21 mm and *B. frigida* with a maximum length of 6.0 mm (CANTERA and ARNAUD, 1985). Our specimens have a typical *austrina* shell sculpture and round aperture, white colour and a length never shorter than 8.0 mm.

Distribution: Type locality is Kerguelen Is. WATSON (1886) finds this species off Marion I., Prince Edward I. and in the Royal Sound (Kerguelen). THIELE (1912) records it in Kerguelen and described a new species *Banzarecolpus frigida* from Kerguelen too. POWELL (1957) records *B. austrina* from a series of BANZARE localities in Kerguelen. CANTERA and ARNAUD (1985) record it in Crozet and Kerguelen Is. in depths of 2 to 1390 m. BRANCH *ET AL.* (1991) record this species in Marion and Prince Edward Is. between 85 and 228 m. In this collection the only live specimens are from Port aux Français and was collected in mud at 30 m.

Family CERITHIIDAE Fleming, 1822
Genus *Eumetula* Thiele, 1912

Eumetula ornata Thiele, 1912 (Fig. 12)

Eumeta ornata Thiele, 1912: 242, pl. 15, fig 14.
Eumetula ornata: Powell, 1957: 129; Powell, 1960: 140; Cantera and Arnaud, 1985: 53.

Material: 1 sp. (5.79 x 15.69 mm), D16-D17; 1 sp. (2.78 x 7.54 mm), D 35.

Remarks: This species was described by THIELE (1912) from specimens found in Observatory Bay. The original specimen have 4.25 mm of length and seven and half body whorls. Later CANTERA and ARNAUD (1985) record two species of *Eumetula* based on dead shells: one has 12.0 mm of length and a maximum length of 7.0 mm for *Eumetula ornata*. We have found a specimen of 16 mm of length and ten and half body whorls and other with 7.8 mm of length and eight and half body whorls. We consider these specimens found in the shallow waters of Kerguelen Is. as *Eumetula ornata* specimens.

Distribution: Type locality THIELE (1912) is Observatory Bay, Kerguelen Is. POWELL (1957) finds it in BANZARE localities in Kerguelen Is. and CANTERA and ARNAUD (1985) records it in Crozet and Kerguelen Is., in depths of 15 to 22 m in Kerguelen, where they found live specimens. Our specimens come from Morbihan Bay and was collected in algae from depths of 25-50 m.

Family STRUTHIOLARIIDAE Gabb, 1868
Genus *Perissodonta* Martens, 1878

Perissodonta mirabilis (Smith, 1875) (Fig. 13)

Struthiolaria mirabilis Smith, 1875.
Perissodonta mirabilis var. *georgiana* Strebel, 1908: 46, pl. 3, figs. 33a, b, c.
Perissodonta mirabilis georgiana: Powell, 1951: 129, pl. 8, figs. 40-42.
Perissodonta mirabilis: Powell, 1957: 131; Powell, 1960: 144; Cantera and Arnaud, 1985: 57.

Material: 2 sp. (25.89 x 41.98 mm; 24.44 x 41.18 mm) and 2 shells (28.22 x 43.38 mm – 20.02 x 35.13 mm), D6; 2 sp. (25.53 x 38.48 mm; 23.81 x 34.44 mm) and 2 broken shells, D7; 11 sp. (26.04 x 43.64 mm – 23.27 x 34.02 mm) and 1 broken shell, D9; 2 sp. (22.31 x 34.07 mm - 21.01 x 32.98 mm) and 2 broken shells, D10; 2 sp. (22.77 x 35.95 mm; 20.79 x 32.16 mm) and 2 shells (25.77 x 39.97 mm; 23.43

x 34.86 mm), D12-D14; 4 shells (24.51 x 35.87 mm – 23.81 x 36.05 mm), D16-D17; 7 sp. (26.78 x 41.97 mm– 21.99 x 32.50 mm) and 3 shell (27.55 x 39.88 mm - 18.62 x 31.52 mm), D19-21; 9 sp. (27.10 x 41.02 mm – 13.72 x 22.63 mm) and 2 shells (25.38 x 39.0 mm – 23.01 x 42.61 mm), D25-D29; 4 sp. (24.20 x 38.79 mm; 23.86 x 28.97 mm) and 1 shell (23.27 x 36.08 mm), D31-D32; 1 sp. (22.34 x 32.98 mm), D36.

Remarks: This family is restricted to southern waters and only one species of the genus is living in Antarctic waters; *Perissodonta mirabilis*. STREBEL (1908) records a variety or subspecies called *P. mirabilis georgiana* from material found in Seymour I. and POWELL (1951) maintains this variety based on the opercular variation. Later POWELL (1957) considers that differences between Kerguelen and Georgia populations were unsufficient for maintaining the validity of Strebel's variety.

Distribution: Type localities are Swain's Bay, Kerguelen (*P. m. mirabilis*) and Cumberland Bay, South Georgia (*P. m. georgiana*). STREBEL (1908 as *P. m. georgiana*) finds this species in Seymour I., POWELL (1951 as *P. m. georgiana*) records this species in South Georgia and later in different BANZARE localities in Kerguelen (POWELL 1957). CANTERA and ARNAUD (1985) record it in Kerguelen and Crozet Is. They find *P. mirabilis* specimens alive in depths of 15 to 3025 m in Kerguelen and point out that it is particularly abundant between 15 and 150 m. In this collection *P. mirabilis* is the most abundant gastropod and was found in muddy and sandy bottoms with *Macrocystis* from depths of 30 to 90 m.

Family NATICIDAE Forbes, 1838
Genus *Kerguelenatica* Powell, 1951

Kerguelenatica bioperculata Dell, 1990 (Fig. 14)

Natica grisea Martens, 1878; Watson, 1886: 432, pl. 28, fig. 5; Strebel 1908: 61.
Fraginatica grisea: Hedley, 1916: 52.
Amauropsis (*Kerguelenatica*) *grisea*: Powell, 1951: 118; Powell, 1957: 130; Powell, 1958: 190; Powell, 1960: 144; Arnaud, 1972: 125, fig. 16; Egorova, 1982: 29.
Kerguelenatica bioperculata, n. n. Dell, 1990: 145, figs. 252, 253, 264.

Material: 1 sp. (10.29 x 11.01 mm), D9; 1 sp. (8.51 x 9.23 mm), D19-D21; 1 sp. (8.34 x 8.43 mm), D25-D29; 2 sp. (9.75 x 9.81 mm - 7.65 x 8.34 mm), D31-D32; 3 shells (7.63 x 8.35 mm – 6.58 x 6.75 mm), D37.

Remarks: The first author to place this species in a different subgenus was POWELL (1951), who considered *Kerguelenatica* as a subgenus of *Amauropsis*. The same author points out that it is easily recognised by the composite nature of the operculum and points that it is possible that more that one species is represented here. Dell (1990) suggests that it is treated as a genus and renames the species as *Kerguelenatica bioperculata*. This species could be easily confused with a species of the genus *Falsilunatia*, DELL (1990) points out that some published records of *bioperculata* may have been based on *Falsilunatia delicatula*. Our specimens have a horny operculum with an outer calcareous covering, characteristics that included them in the genus *Kerguelenatica* (DELL 1990), it has a maximum length of 11.0 mm although usually the length is about 8.0 mm, it has a pale brown to yellowish epidermis and a chink shaped umbilicus. These characteristics fits the description of the shell gives by DELL (1990).

Distribution: The type locality is Kerguelen. WATSON (1886 as *Natica grisea*) finds this species in Kerguelen within "Challenger" material. STREBEL (1908 under *Natica grisea*) and Hedley (1916 under *Fraginatica grisea*) record it, the later one in Commonwealth Bay and Shackleton Ice-shelf. Later POWELL

(1951), ARNAUD (1972) and EGOROVA (1982) record this species as a subgenus of *Amauropsis* in South Shetlands, Bouvet I., Ross Sea and Adelie Land. Some records of *bioperculata* may be based on *delicatula* specimens. For this reason the distribution of *Kerguelenatica bioperculata* is still uncertain (DELL 1990), although this author points out that its distribution range is around the Antarctic continent from 49° E to 140° E and records a long series of places from the Ross Sea to South Georgia and Kerguelen (DELL 1990). Specimens of this collection was collected in mud, sand, pebble and gravel from depths of 25-50 m.

Family NATICIDAE Forbes, 1838
Genus *Falsilunatia* Powell, 1951

Falsilunatia cf. *delicatula* (Smith, 1902) (Figs. 15, 46)

Natica delicatula Smith, 1902; Thiele, 1912: 199, pl. 12, figs. 16, 17.
Falsilunatia delicatula: Dell, 1990: 148, figs. 237, 256, 257, 269.

Material: 1 sp. (13.65 x 15.21 mm), D19-D21; 1 shell (9.86 x 10.68 mm), D36.

Remarks: The shell characteristics of our single specimen are very close to *Kerguelenatica bioperculata*. The shell is thin, with a pale brown epidermis, open umbilicus and has a horny operculum without a outer calcareous covering. Its radula is of the *Falsilunatia* type, with a central tooth with a central cusp and a pair of peg-like basal cusps, lateral teeth with a single cusp and a small subsidiary cusp near the upper and marginal teeth simple. These radular characteristics included it in the genus *Falsilunatia*, and the characteristics of the shell operculum poin to *F. delicatula*. DELL (1990) gives a good description of *delicatula*, with shell measurements and figures, which fit our specimens.

Distribution: DELL (1990) remarks that it is impossible to analyse the range of *delicatula* adequately. This is due to the uncertainly of previous identifications and records it in the Ross Sea between 47–1890 m. Our specimen was collected in muddy bottoms from off Suhm I. in 45–50 m and a dead shell was found from Fosse de l'Hydrographie in a depth of 90 m.

Falsilunatia cf. *xantha* (Watson, 1881) (Figs. 16, 47)

Natica xantha Watson, 1881; Watson, 1886: 445, pl. 27, fig. 8.
Amauropsis xantha: Powell, 1958: 189; Powell, 1960: 144; Arnaud, 1972: 125; Cantera and Arnaud, 1985: 58; Cantera and Arnaud, 1985: 58.
Falsilunatia cf. *xantha*: Dell, 1990: 152, figs. 232, 272.

Material: 2 sp. (4.5 x 4.9 mm), D6; 1 sp. (6.5 x 7.3 mm) and 2 shells (7.0 x 7.0 mm), D10; 2 sp. (10.3 x 11.50 mm; 6.01 x 6.90 mm) and 2 shells (10.50 x 11.68 mm; 6.14 x 9.48 mm), D19-D21; 2 sp. (11.89 x 13.68 mm; 5.63 x 7.21 mm), D25-D29; 1 sp. (11.79 x 12.86 mm) and 1 shell (12.51 x 12.62 mm), D31-D32.

Remarks: A series of specimens found in this collection are very close to *xantha*. These Kerguelen specimens have a globose shell with a thin yellowish to pale brown epidermis and a white columellar callus, the umbilicus is a slight chink. They have a spiral sculpture of fine threads and a horny operculum. The radula is of the *Falsilunatia* type, and very close to *delicatula*'s radula, but the central tooth is wider. These characteristics agree with the description of Dell's specimens, which con-

sidered them referable to *Falsilunatia* cf. *xantha* (DELL 1990). He points out that the topotypic material of *xantha* must be examined to settle the generic placing (DELL 1990: 153). The specimens in our collection cannot be identified with certainty with *xantha* for the same reason.

Distribution: Type locality WATSON (1886) between Kerguelen and Heard Is. POWELL (1958) records it off Enderby Land, ARNAUD (1972) in Adelie Land, and CANTERA and ARNAUD (1985) record live specimens in Kerguelen in a depth of 17 to 650 m and death shells in Crozet. DELL (1990) remarks that due to the difficulties of identification the range of *xantha* cannot be stated and records it in the Ross Sea between 348 and 549 m. Specimens of this collection were found in mud, sand and algae in Kerguelen between 30 to 50 m.

Family NATICIDAE Forbes, 1838
Genus *Sinuber* Powell, 1951

Sinuber sculpta Martens, 1878 (Fig. 17)

Natica perscalpta Martens, 1878; Watson, 1886: 454, pl. 28, fig. 4.
Sinuber perscalpta: Powell, 1957: 130; Powell, 1960: 145;
Sinuber sculpta: Cantera and Arnaud, 1985: 60.

Material: 2 shells (17.02 x 20.01 mm; 16.15 x 19.98 mm), D18.

Remarks: These thin shells are of great size (about 20 mm), with an inconspicuous periostracum, sculpture of grooves and a chink-like umbilicus. It is easy to separate from *S. sculptum* by its great size and its chink-like umbilicus, almost closed by the columellar callus. The Watson's figure shows a thin globose shell with fine linear grooves (WATSON 1886). Our specimens are very close to it but the spires are more acute and the aperture is a little larger.

Distribution: The type locality is Royal Sound, Kerguelen Is. WATSON (1886) records this species in Kerguelen Is. and POWELL (1957) finds it in two BANZARE localities at Kerguelen. Later CANTERA and ARNAUD (1985) record it in Kerguelen and Crozet with a maximum size of 40 mm in Kerguelen and 8 mm in Crozet. Shells of this collection were found in muddy bottoms at 10 m.

Naticidae indet.

Material: 2 shells, D5; 2 broken shells and 2 shells, D8; 2 broken shells, D9; 1 broken shell and 1 shell, D12-D14; 4 broken shells, D19-21.

Remarks: Here we include badly preserved shells of the family found in different localities. All were impossible to identify.

Family LAMELLARIIDAE Orbigny, 1841
Genus *Marseniopsis* Bergh, 1886

Marseniopsis cf. *pacifica* Bergh, 1886 (Fig. 18)

Marseniopsis pacifica Bergh, 1886; Thiele, 1912: 200, pl. 12, fig. 18; Powell, 1951: 123; Marcus, 1959: 8, figs. 1-8; Powell, 1960: 146; Cantera and Arnaud, 1985: 62; Dell, 1990: 165; Cattaneo-Vietti *et al.*, 2000: 176.

Material: 1 sp. (11.0 x 14.0 mm), D38-D39.

Remarks: There are three species of *Marseniopsis* described from Antarctica, but only one is represented in Kerguelen Is., *M. pacifica*. The external aspect of our single specimen agrees with the Marcus's figure (MARCUS, 1959) and makes us suppose that it is a specimen of *M. pacifica*, but its anatomy and radular characteristics must be checked.

Distribution: The type locality is Kerguelen Is. POWELL (1951) records *pacifica* in South Georgia, South Orkneys and Palmer Archipelago. MARCUS (1959) records this species on the coast of Chile and CANTERA and ARNAUD (1985) find it in Kerguelen and Crozet Is. Dell (1990) gives the range of *Marseniopsis pacifica* as including Magellan strait and Antarctic Peninsula, and CATTANEO-VIETTI *ET AL.* (2000) record this species in Terra Nova Bay, Ross Sea.

Family BUCCINIDAE Rafinesque, 1815
Genus *Neobuccinum* Smith, 1877

Neobuccinum eatoni (Smith, 1875) (Fig. 19)

Buccinopsis eatoni Smith, 1875
Neobuccinum eatoni Watson, 1886: 216; Thiele, 1912, 211; Hedley, 1916:59 pl. 9, fig. 97; Powell, 1951: 143; Powell, 1957: 132; Powell, 1958: 193; Powell,1960: 150; Arnaud, 1972: 128; Egorova, 1982: 41, figs. 172-176; Cantera and Arnaud, 1985: 70; Dell, 1990: 165, figs. 280-282; Cattaneo-Vietti *et al.*, 2000: 175.
Neobuccinum praeclarum Strebel, 1908:31, pl. 3, fig. 38.

Material: 2 sp. (15.64 x 23.51 mm; 14.18 x 22.27 mm), T1.

Remarks: Our two specimens have a deciduous straw coloured epidermis produced in fine spiral lines and only persisting on the last whorl. The operculum is horny with a subterminal nucleus and fine grow lines, it agrees with the Egorova's figure (EGOROVA 1982). DELL (1990) points that the variation of the shell proportion with size and the variation in the shell outline may be the indication that more than one species could be represented.

Distribution: The type locality is Royal Sound, Kerguelen (*N. eatoni*) and Graham Land (*N. praeclarum*). Some authors consider this species with a circumantarctic distribution (POWELL 1958, 1960) or circumantarctic and subantarctic (ARNAUD 1972) and it is one of the most widely distributed molluscs in the Antarctic (POWELL 1957). This species does not appear to reach South Georgia and it is not represented in the Magellanic region (DELL, 1990). CATTANEO-VIETTI *ET AL.* (2000) record this species in Terra Nova Bay, Ross Sea and point out that it is the most common buccinid gastropod. Our specimens were collected in stomachic contens from Morbihan Bay in Kerguelen Is., which seems to be its northern limit (POWELL 1957).

Family BUCCINIDAE Rafinesque, 1815
Genus *Pareuthria* Strebel, 1905

Pareuthria chlorotica (Martens, 1878) (Fig. 20)

Euthria chlorotica Martens, 1878.
Fusus Euthria chloroticus: Watson, 1886: 209, pl. 18, fig. 8.
Pareuthria chlorotica: Thiele, 1912 (in faunal list); Powell, 1957: 132; Powell, 1960: 147; Cantera and Arnaud, 1985: 66.

Material: 4 sp. (10.15 x 16.34 mm – 6.97 x 10.81 mm) and 3 damaged shells (11.0 x 16.11 mm – 10.69 x 14.09 mm), D7; 1 sp. (10.89 x 19.25 mm) and 2 shells (8.4 x 12.8 mm), D8; 2 sp. (13.0 x 19.17 mm; 6.46 x 10.60 mm), D16-D17; 1 shell (11.38 x 17.66 mm), D19-21; 3 sp. (12.33 x 18.35 mm - 8.62 x 12.16 mm) and 1 damaged shell (5.9 x 9.09 mm), D31-D32; 2 sp. (9.75 x 15.75 mm; 7.88 x 13.13 mm) and 2 shells (11.91 x 18.0 mm; 12.12 x 17.71 mm), D36.

Remarks: Shell ovate, of moderate size (about 20 mm) with a pale brown deciduous epidermis in juvenile specimens, which is brown in dead and eroded shells. The surface is covered with a spiral sculpture of close-set threads and in the last whorl, near the canal, it has a sculpture of fine lines. The operculum is leaf-shaped with a subterminal nucleus and the aperture is semicircular, ending in a curved canal. Our specimens agree in shell features and measurements with the Watson`s figure (WATSON 1886).

Distribution: The type locality is Kerguelen Is. WATSON (1886) records this species from Kerguelen Is. THIELE (1912) records in a faunal list and POWELL (1957) finds it in a BANZARE localities at Kerguelen. CANTERA and ARNAUD (1985) find *chlorotica* in Kerguelen and Crozet Is., being the later a new record. Our specimens were collected in muddy bottoms from depths of 48-90 m.

Pareuthria regulus (Watson, 1882) (Fig. 21)

Fusus (*Sipho*) *regulus* Watson, 1882.
Fusus (*Neptunea*) *regulus*: Watson, 1886: 204, pl. 12, fig. 7.
Pareuthria regulus: Powell, 1957: 132; Powell, 1960: 148; Cantera and Arnaud, 1985: 66; Branch *et al.*, 1991: 59.

Material: 1 sp. (3.0 x 6.5 mm), D6.

(Right page) Figure 20: *Pareuthria chlorotica*, 19.2 x 10.8 mm. Figure 21: *Pareuthria regulus*, 6.5 x 3.0 mm. Figure 22: *Falsimohnia albozonata*, 4.0 x 8.5 mm. Figure 23: *Prosipho propinquus*, 5.0 x 2.5 mm. Figure 24: *Trophon albolabratus*, 12.8 x 7.5 mm. Figure 25: *Trophon septus*, 22.5 x 10.1 mm. Figure 26: *Admete carinata*, 11.5 x 8.0 mm. Figure 27: *Admete specularis*, 10.4 x 6.7 mm. Figure 28: *Paradmete fragillima*, 12.1 x 6.1 mm. Figure 29: *Spirotropis studeriana*, 8.0 x 4.1 mm. Figure 30: *Typhlodaphne translucida*, 10.1 x 5.4 mm. Figure 31: *Toledonia elata*, 4.3 x 2.2 mm. Figure 32: *Yoldia* (*Aeqviyoldia*) *isonota*, 18.2 x 10.9 mm. Figure 33: *Yoldia* (*Aeqviyoldia*) *eightsi*, 19.0 x 12.9 mm. Figure 34: *Pseudokellya cardiformis*, 4.6 x 4.5 mm. Figure 35: *Gaimardia t. trapesina*, 16.6 x 12.2 mm. Figure 36: *Neolepton umbonatum*, 4.5 x 5.5 mm. Figure 37: *Limatula* (*Antarctolima*) *pygmaea*, 11.2 x 8.5 mm. Figure 38: *Cyclocardia astartoides*, 14.4 x 18.1 mm. Figures 39, 40: *Hiatella antarctica*, 19.0 x 8.2 mm. Figure 41: *Laternula elliptica*, 20.5 x 12.4 mm. Figure 42: *Thracia meridionalis*, 20.5 x 14.3 mm.
(Página derecha) Figura 20: Pareuthria chlorotica, *19,2 x 10,8 mm. Figura 21:* Pareuthria regulus, *6,5 x 3,0 mm. Figura 22:* Falsimohnia albozonata, *4,0 x 8,5 mm. Figura 23:* Prosipho propinquus, *5,0 x 2,5 mm. Figura 24:* Trophon albolabratus, *12,8 x 7,5 mm. Figura 25:* Trophon septus, *22,5 x 10,1 mm. Figura 26:* Admete carinata, *11,5 x 8,0 mm. Figura 27:* Admete specularis, *10,4 x 6,7 mm. Figura 28:* Paradmete fragillima, *12,1 x 6,1 mm. Figura 29:* Spirotropis studeriana, *8,0 x 4,1 mm. Figura 30:* Typhlodaphne translucida, *10,1 x 5,4 mm. Figura 31:* Toledonia elata, *4,3 x 2,2 mm. Figura 32:* Yoldia (Aeqviyoldia) isonota, *18,2 x 10,9 mm. Figura 33:* Yoldia (Aeqviyoldia) eightsi, *19,0 x 12,9 mm. Figura 34:* Pseudokellya cardiformis, *4,6 x 4,5 mm. Figura 35:* Gaimardia t. trapesina, *16,6 x 12,2 mm, Figura 36:* Neolepton umbonatum, *4,5 x 5,5 mm. Figura 37:* Limatula (Antarctolima) pygmaea, *11,2 x 8,5 mm. Figura 38:* Cyclocardia astartoides, *14,4 x 18,1 mm. Figuras 39, 40:* Hiatella antarctica, *19,0 x 8,2 mm. Figura 41:* Laternula elliptica, *20,5 x 12,4 mm. Figura 42:* Thracia meridionalis, *20,5 x 14,3 mm.*


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Remarks: Our specimens have a fusiform shell with axial ribs present in the body whorl and an ovate operculum with a terminal nucleus. These features included this species in the subfamily Cominellinae and together with its small size, anterior canal and opercular characteristics locate it in the genus *Pareuthria*. CANTERA and ARNAUD (1985) include *Fusus* (*Sipho*) *edwardiensis* in the synomy of *P. regulus*, but *edwardiensis* have not axial ribs in the last whorl. For lack of type material to compare with, we think that our specimen is a *Pareuthria regulus*. BRANCH *ET AL.* (1991) recorded *P. regulus* but refered it to WATSON (1883). However Branch's figure agrees in shell features with our specimen.

Distribution: The type locality is Royal Sound, Kerguelen Is. WATSON (1886) records two species of *Fusus* (*Neptunea*): *regulus* from Kerguelen and *edwardiensis* from between Marion I. and Prince Edward I. POWELL (1957) records *Pareuthria regulus* in a BANZARE locality at Kerguelen, later in a summary records two species refereed to *F. regulus* in the Kerguelen. CANTERA and ARNAUD (1985) record *Pareuthria regulus* in Kerguelen and Crozet Is. and BRANCH *ET AL.* (1991) in Marion and Prince Edward Is. between 0 and 527 m. Specimen of this collection was collectec in mud with spicles at 40 m.

Family BUCCINIDAE Rafinesque, 1815
Genus *Falsimohnia* Powell, 1951

Falsimohnia albozonata (Watson, 1882) (Fig. 22)

Buccinum albozonatum Watson, 1882; Watson, 1886: 212, pl. 13, fig. 7.
Falsimohnia albozonata: Powell, 1951: 138; Powell, 1957: 133; Powell, 1960: 149; Cantera and Arnaud, 1985: 67.

Material: 3 sp. (4.0 x 8.5 mm – 3.0 x 6.0 mm), D6; 1 shell (2.5 x 4.5 mm), D35.

Remarks: The shell is easy to recognise by its brown colour with a white band in each whorl and in the pillar. It has a small and very thin shell with a tall spire and a spiral sculpture of fine threads. Our specimens reach 8.0 mm long but CANTERA and ARNAUD (1985) give a maximum size of 12.0 mm from specimens collected in Kerguelen.

Distribution: The type locality is Royal Sound, Kerguelen Is. Later Powell records *F. albozonata* from South Georgia (POWELL, 1951) and Kerguelen (POWELL, 1957). More recently CANTERA and ARNAUD (1985) find this species in Kerguelen and Crozet Is., being the second locality a new record for this species. Our specimens were collected in mud with spicles at 40 m.

Family BUCCINIDAE Rafinesque, 1815
Genus *Prosipho* Thiele, 1912

Prosipho propinquus Thiele, 1912 (Fig. 23)

Prosipho propinquus Thiele, 1912: 245, pl. 13, fig. 11; Powell, 1957: 133; Powell, 1960: 152; Cantera and Arnaud, 1985: 73.

Material: 1 sp. (2.5 x 5.0 mm), D35.

Remarks: This species has a small (4.8 x 2.5 mm) brown shell with radial ribs, 3 whorls and a protoconch of one and half whorls and a D-shaped aperture. The shell colour is white in the canal and external lip. In the first and second

whorl it has two radial ribs and over six in the body whorl.

Distribution: The type locality is Observatory Bay, Kerguelen Is. It has been recorded in Kerguelen. POWELL (1957) record this species in Bras Bolinder but CANTERA and ARNAUD (1985) did not find it in their samples from Kerguelen. Our specimen was collected in algae collected in Morbihan Bay at depth of 25 m.

Family BUCCINIDAE Rafinesque, 1815
Genus *Bathydomus* Thiele, 1912

Bathydomus sp.

Material: 1 damaged shell, D7; 1 sp., D9; 1 sp. and 1 shell, D10; 1 sp., D12-D14; 1 sp. and 2 shells, D25-D29.

Remarks: Not assigned to any species.

Distribution: The specimens were found in Kerguelen Is.

Family MURICIDAE Rafinesque, 1815
Genus *Trophon* Montfort, 1810

Trophon albolabratus Smith, 1875 (Fig. 24)

Trophon albolabratus Smith, 1875; Strebel, 1908: 42; Powell, 1957: 134; Powell, 1960: 153; Cantera and Arnaud, 1985: 63.

Material: 1 broken shell (9.44 x 24.73 mm), D8; 1 shell (10.95 x 20.61 mm), D9; 1 sp. (4.43 x 8.24 mm) and 2 shells (11.40 x 20.71 mm; 8.66 x 16.59 mm), D10; 1 shell (8.79 x 17.55 mm), D12-D14; 1 shell (10.76 x 19.13 mm), D16-D17; 1 shell (16.2 x 22.8 mm) and 3 broken shells, D19-21; 3 sp. (14.92 x 26.87 mm - 7.56 x 13.22 mm) and 1 shell (8.7 x 16.1 mm), D25-D29; 2 sp. (7.29 x 13.18 mm; 7.25 x 12.61 mm), D35.

Remarks: This species is easy to recognise by the reticulation formed by axial lamellae and spiral cords. In Kerguelen specimens this reticulation produced usually interspaces higher than wide. POWELL (1957) points out that the Macquarie shells, recorded erroneously by HEDLEY (1916) produce interspaces two or three times wider than high and in *T. albolabratus* the reticulation have rectilinear interspaces.

Distribution: The type localities are Swain's Bay and Royal Sound, Kerguelen. This species has been recorded from Kerguelen by STREBEL (1908). POWELL (1957) finds this species in a series of BANZARE localities at Kerguelen and later extends its range to South Georgia and South Orkneys (Powell, 1960). A more complete distribution range was given by CANTERA and ARNAUD (1985), including Falkland Is. Our material comes from mud, sand and algae collected in Morbihan Bay, where CANTERA and ARNAUD (1985) recorded it as a common on a variety of bottoms.

Trophon septus Watson, 1882 (Fig. 25)

Trophon septus Watson, 1882; Watson, 1886: 170, pl. 10, fig. 11; Powell, 1957: 134; Powell, 1960: 154; Cantera and Arnaud, 1985: 65; Branch *et al.*, 1991: 59.

Material: 1 sp. (6.03 x 10.66 mm), D7; 2 sp. (10.29 x 22.75 mm; 10.36 x 22.62 mm), D8; 1 sp. (6.46 x 14.64 mm) and 1 shell (7.62 x 16.65 mm), D31-D32.

Remarks: This species is easy to recognise by the angulose shoulder, where are placed prominent tubercles and it has a long, narrow canal. The shell is porcelaneus white with 5 or 6 whorls, paucispiral protoconch and a horny, ovate operculum with a terminal nucleus. Our specimens agree in shell features with the Watson's figure (WATSON, 1886). However the specimen represented by BRANCH *ET AL.* (1991) has a more globose shell, the tubercles are less prominent than in Watson's figure and has a short canal.

Distribution: The type locality is Royal Sound, Kerguelen. Later POWELL (1957) finds this species in BANZARE localities from Kerguelen. CANTERA and ARNAUD (1985) record *T. septus* in Kerguelen and Crozet, pointing out that is a species living in a great variety of bottoms and with a bathymetric range of 30 to 620 m in the Kerguelen Is. BRANCH *ET AL.* (1991) record it from Marion and Prince Edward Is. in depths of 140 to 200m. Our specimens were collected in mud from depths of 48-65 m.

Family CANCELLARIIDAE Forbes and Hanley, 1853
Genus *Admete* Kroyer, 1842

Admete carinata (Watson, 1883) (Fig. 26)

Cancellaria (*Admete*) *carinata* Watson, 1883; Watson, 1886: 275, pl. 18, fig 9.
Admete carinata: Powell, 1960: 157; Cantera and Arnaud, 1985: 76.

Material: 1 sp. (8.02 x 11.53 mm), D7.

Remarks: The systematics of the antarctic forms of *Admete* present a number of problems. This genus contains a few species of southern latitudes and some species which have been placed here but actually belong to other groups (BOUCHET and WARÉN 1985). The shell is white with a yellowish epidermis and it has two collumelar teeth and it lacks of operculum. This species of *Admete* differs from *A. specularis* in the stronger shelter and the fine spiral threads below the shelter, besides *A. carinata* has 5 whorls and the spire is short while *A. specularis* has 5 $^{1}/_{2}$ whorls and its spire is larger. CANTERA and ARNAUD (1985) give a maximum size of 20 mm for *carinata* and 13 mm for *specularis*. Our specimen has 12.5 mm of length and agree in shell features with the Watson`s description and figure (WATSON 1886).

Distribution: The type locality is Royal Sound, Kerguelen Is. POWELL (1960) records this species in Falkland Is. and Tierra del Fuego. CANTERA and ARNAUD (1985) find it in Kerguelen between 71 and 195 m. Our single specimen was collected in mud at 65 m.

Admete specularis (Watson, 1882) (Fig. 27)

Cancellaria (*Admete*) *specularis* Watson, 1882; Watson, 1886: 274, pl. 18, fig. 9.
Admete specularis: Powell, 1957: 134; Powell, 1960: 158; Cantera and Arnaud, 1985: 76; Branch *et al.*, 1991: 59.

Material: 2 sp. (6.71 x 10.16 mm – 4.92 x 7.47 mm) and 5 shells (6.42 x 9.70 mm – 5.62 x 8.6 mm), D9; 4 shells (6.0 x 10.0 mm – 6.0 x 9.5 mm), D10; 1 broken shell, D31-D32.

Remarks: This shell is white with a yellowish epidermis, below the shelter that is only marked by an angulation it has a sculpture of spiral lines on the whole shell surface and it has two collumelar teeth. This shell is shorter than *ca-*

rinata but its spire is longer because the body whorl of *specularis* is shorter than the body whorl of *carinata*. The mouth is semicircular and differs from *carinata* where the mouth is wide, angulated and reaches half the size of the shell.

Distribution: The type locality is near Royal Sound, Kerguelen Is. WATSON (1886) found it also off Heard Is. POWELL (1957) records it in the BANZARE material collected in Kerguelen, CANTERA and ARNAUD (1985) from Kerguelen and Crozet Is. and BRANCH *ET AL.* (1991) from Marion and Prince Edward Is. between 49 and 228 m. Specimens of this collection were collected in mud and sand with *Macrocystis* from depths of 30-50 m.

Family VOLUTOMITRIDAE Gray, 1845
Genus *Paradmete* Strebel, 1908

Paradmete fragillima (Watson, 1882) (Fig. 28)

Volutomitra fragillima Watson, 1882; Watson, 1886: 263, pl.14, fig. 7: Thiele, 1912: 264; Cantera and Arnaud, 1985: 75.
Paradmete fragillima: Powell, 1951: 165, Powell, 1957: 134; Powell, 1958: 198; Powell, 1960: 157; Egorova, 1982: 37, fig. 166; Dell, 1990: 222, fig. 390.
Paradmete typica Strebel, 1908: 22, pl. 3, figs. 35 a-f.

Material: 1 broken shell, D2; 1 sp. (6.02 x 12.2 mm) and 2 shells (7.22 x 14.11 mm; 6.59 x 13.8 mm), D9; 2 shells (7.58 x 15.1 mm; 6.92 x 13.97 mm), D16-D17; 1 sp. (6.62 x 12.44 mm), D31-D32; 2 shells (3.86 x 8.83 mm; 3.36 x 5.81 mm), D37.

Remarks: *P. fragillima* has white shell, smooth with four oblique teeth in the columella. Sculpture of fine longitudinal grown lines with a fine yellowish epidermis. It reaches a maximun size of 23 mm in Kerguelen and it is more abundant in the bays (CANTERA and ARNAUD 1985). Only two live specimens were collected in the Morbihan Bay between 30-50 m, reaching 14 mm of length and 6.4 mm of wid.

Distribution: The type localities are Royal Sound, Kerguelen Is. (*P. fragillima*), South Georgia (*P. typica*). POWELL (1951) collected it in South Georgia and Palmer archipelago and later the same author found it in BANZARE localities at Kerguelen Is. (POWELL, 1957) and in the Victoria – Ross Quadrant's (POWELL, 1958). CANTERA and ARNAUD (1985) collected this species in a many stations at Kerguelen and Crozet, between 37 and 315 m of depth. DELL (1990) gives a complete description of the range distribution of *P. fragillima* and the bathymetric range where this species was found. This species was collectec in a great variety of bottoms from depths of 23-50 m.

Family TURRIDAE Swainson, 1840
Genus *Spirotropis* G. O. Sars, 1878

Spirotropis studeriana (Martens, 1878) (Fig. 29)

Pleurotoma (*Spirotropis*) *studeriana* Martens, 1878; Watson, 1886: 322, pl. 25, fig. 7.
Spirotropis studeriana: Powell, 1957: 135; Powell, 1960: 160; Powell, 1966: 75; Cantera and Arnaud, 1985: 78; Branch *et al.*, 1991: 59.

Material: 2 sp. (5.99 x 14.47 mm; 5.03 x 11.51 mm) and 1 shell (4.71 x 11.12 mm), D7; 1 sp. (4.07 x 7.95 mm), D8; 5 sp. (6.02 x 13.61 mm – 3.61 x 7.63 mm) and 1 shell (5.61 x 12.89 mm), D31-D32.

Remarks: This shell is characterised by its tall spire, angulated whorls and a subsutural sinus. The aperture is pyriform, ending in a short and straight canal, it has a sculpture of wavy axial ribs and white colour. The protoconch is smooth, rounded and has 1 1/2 whorls, we could not see the operculum because the animal was retracted in all the specimens that we found, but the typical *Spirotropis* operculum is leaf- shaped with a terminal nucleus (POWELL 1966). Our specimens reach a maximum of 14 mm of length, but in adult specimens the maximum size is 26 mm (CANTERA and ARNAUD, 1985). BRANCH *ET AL.* (1991) give a size of 15 mm from specimens collected in Marion and Prince Edward Is.

Distribution: The type locality is Kerguelen Is. POWELL (1957) find it in the material collected in Kerguelen belonging to the BANZARE Expedition. CANTERA and ARNAUD (1985) find this species in Kerguelen and give a new record to Crozet. BRANCH *ET AL.* (1991) collect it in Marion and Prince Edward Is., between 140 and 204 m. Our specimens were collected in mud from depths of 48-65 m.

Family TURRIDAE Swainson, 1840
Genus *Typhlodaphne* Powell, 1951
Typhlodaphne translucida (Watson, 1881) (Fig. 30)

Pleurotoma (*Thesbia*) *translucida* Watson, 1881; Watson, 1886: 330, pl. 25, fig. 11.
Thesbia translucida: Thiele, 1912: 248, pl. 15, fig. 15.
Typhlodaphne translucida: Powell, 1951: 175; Powell, 1957: 136; Powell, 1958: 204; Powell, 1960: 160; Powell, 1966: 129; Cantera and Arnaud, 1985: 80; Dell, 1990: 239; Branch *et al.*, 1991: 59.

Material: 2 sp. (5.46 x 10.08 mm; 4.5 x 8.5 mm) and 1 shell (6.52 x 12.49 mm), D25-D29; 1 shell (2.0 x 5.0 mm), D31-D32.

Remarks: The shell is oval, white in colour and smooth, it has not operculum and presents a sculpture of fine lines of growth. CANTERA and ARNAUD (1985) give a maximum size of 14 mm for Kerguelen specimens, our two specimens measured 11 mm in length.

Distribution: The type locality is halfway between Marion I. and Prince Edward I. *Typhlodaphne translucida* has been also recorded in material of a BANZARE expedition from Kerguelen (POWELL 1957) and Victoria – Ross Quadrant's (POWELL 1958). CANTERA and ARNAUD (1985) collect this species from Kerguelen and Crozet, being the later a new record. DELL (1990) gives a range distribution of *T. translucida* that included the antarctic continent between 49° E-53° E and BRANCH *ET AL.* (1991) collected it from Marion and Prince Edward Is. between 210 and 355 m. Our specimens were collected in mud with *Rhodophyces* from depths of 30-50 m.

Family DIAPHANIDAE Odhner, 1914
Genus *Toledonia* Dall, 1902
Toledonia elata Thiele, 1912 (Fig. 31)

Toledonia elata Thiele, 1912: 249, pl. 14, fig. 22; Powell, 1957: 137; Powell, 1958: 206; Powell, 1960: 161; Dell, 1990: 256, figs. 471, 472.

Material: 1 sp. (2.26 x 4.33 mm), D16-D17.

Remarks: Among the species of *Toledonia* endemic of Kerguelen Dell (1990) points out that *T. punctata* is distinguishable by "the sculpture of the proto-

conch, the strongly developed spiral sculpture and the relatively straight-sided whorl outlines", while *T. elata* have smooth protoconch and a polished shell surface. Our specimen has a smooth protoconch and a polished white shell surface with very fine spiral lines, this spiral sculpture is only noticable with a great magnification. Its measurements are 4.6 x 2.5 with a D/H ratio of 54. We think it is a *T elata* specimen relying on the smooth protoconch and the absence of a strongly spiral sculpture.

Distribution: The type locality is Observatory Bay, Kerguelen Is. Powell records this species in material from BANZARE expedition collected in Kerguelen (POWELL 1957) and in the Victoria – Ross Quadrant (POWELL 1958). POWELL (1960) points out that it has been also recorded from Enderby Land and DELL (1990) found *T. elata* in the Ross Sea between 238 and 351 m.

Family PHILINIDAE Gray, 1850
Genus *Philine* Ascanius, 1772

Philine cf. *amoena* Thiele, 1925

Material: 1 broken shell, D5; 1 shell (6.0 x 7.0 mm), D8; 2 sp. (4.1 x 7.5 mm; 4.1 x 8.0 mm), D25-D29.

Remarks: This species seems to be *amoena*, but without access to type material, we only suspect that it is this species. The shell characteristics agree with this species of *Philine*, although its identity may be confirmed.

Distribution: The type locality is Gazelle Bay, Kerguelen Is. This specie was recorded by POWELL (1957) from two stations of the BANZARE expedition at Kerguelen Is. of which the species is endemic.

Class BIVALVIA
Family SAREPTIDAE A. Adams, 1860
Genus *Yoldia* Möller, 1842
Subgenus *Aeqviyoldia* Scoot-Ryen, 1951

Yoldia (*Aeqviyoldia*) *isonota* Martens, 1881 (Fig. 32)

Yoldia isonota Smith, 1885: 242, pl. 20, figs. 5-5b.
Yoldia (*Aeqviyoldia*) *isonota* Powell, 1957: 115; Powell, 1960: 170.

Material: 3 valves (8.56 x 15.15 mm - 8.10 x 12.44 mm), D2; 11 valves (10.8 x 19.2 mm – 7.9 x 12.8 mm), D3-D4; 2 sp. (15.15 x 26.98 mm; 10.52 x 15.83 mm) and 6 valves (14.5 x 25.0 mm - 9.5 x 15.2 mm), D5; 1 sp. (11.36 x 18.94 mm) and 6 valves (12.42 x 20.23 mm - 9.20 x 14.50 mm), D7; 2 valves (8.83 x 16.58 mm), D16-D17; 2 sp. (10.98 x 18.19 mm; 8.56 x 14.44 mm), D31-D32; 1 sp. (8.59 x 14.01 mm), D36.

Remarks: This species was recorded by Smith (1885) in Kerguelen Is. He pointed out that it is not comparable with any other species.

Distribution: The type locality is Kerguelen Is., from where it was also recorded by the BANZARE expedition (POWELL, 1957). It appears to be endemic of Kerguelen, but ARNAUD (1979) records it at Kerguelen Is. and includes this species in a group with subantartic distribution. In this collection appear three individuals alive in muddy bottoms from 50-90 m, being the remaining material only empty valves.

Yoldia (*Aeqviyoldia*) *eightsi* (Couthouy, in Jay, 1839) (Fig. 33)

Nucula eightsii Couthouy, in Jay, 1839.
Yoldia (Aequiyoldia) eightsi: Dell, 1990: 10, figs. 2, 5; Cattaneo-Vietti *et al.* 2000: 176.
Yoldia subaequilateralis Smith, 1885: 243.
Yodia (*Aequiyoldia*) *subaequilateralis*: Powell, 1957: 114; Powell, 1960: 170.

Material: 1 sp. (19.27 x 32.11 mm) and 3 valves (17.65 x 25.91 mm – 16.22 x 26.59 mm), D5; 1 valve (18.24 x 28.17 mm), D8; 3 sp. (10.93 x 16.81 mm – 8.22 x 12.64 mm) and 5 valves (13.53 x 20.67 mm – 10.57 x 15.76 mm) D9; 1 sp. (14.71 x 22.18 mm) and 4 valves (15.2 x 22.3 mm – 13.2 x 19.5 mm), D10; 1sp. (9.16 x 13.85 mm) and 1 valve (13.59 x 20.81 mm), D12-D14; 1 sp. (15.32 x 22.43 mm) and 1 valve (13.42 x 20.26 mm), D19-21; 2 sp. (12.94 x 19.04 mm; 11.66 x 16.91 mm) and 1 valve (9.02 x 12.84 mm), D25-D29.

Remarks: This is one of the commonest bivalves in antarctic shallow waters (Dell, 1990; Cattaneo-Vietti *et al.*, 2000). *Y. eightsi* was found in the Ross Sea with densities of 70-80 ind./m2 (Cattaneo-Vietti *et al.*, 2000).

Distribution: The type locality is Swain's Bay, Kerguelen Is. This species with circumantarctic distribution (Dell, 1990) extends to the South Shetlands, South Orkneys, South Sandwich Is., South Georgia, Falkland Is., Tierra del Fuego, Southern Chile and to Kerguelen Is. Although its known range is 4-824 m, Dell (1990) remarks that this species is much commoner at depth shallower than at 100 metres. Cattaneo-Vietti *et al.* (2000) find this species in Terra Nova Bay, Ross Sea with a maximum size of 30 mm and between depths of 36 and 380 m. Arnaud (1979) found *Y. isonota* in Kerguelen Is. in coarse sand with a detritic and organogenic components. In the present collection *Y. eightsi* was found in muddy and sandy bottoms with an organogenic components (spicles) from 23 to 50 m.

Family Malletiidae Adams and Adams, 1858
Genus *Malletia* Desmoulins, 1832

Malletia gigantea (Smith, 1875)

Solenella gigantea Smith, 1875.
Malletia gigantea: Thiele, 1912: 254; Powell, 1957: 115; Powell, 1960: 171.

Material: 1 sp. (24.63 x 44.06 mm) and 13 valves (31.0 x 57.2 mm – 25.0 x 47.0 mm), D18; 3 valves, D31-D32.

Remarks: It is the largest bivalve found in this collection and its measurements are 44.06 mm x 24.63 mm. Smith's type is the largest known with 62 mm x 32 mm (Powell, 1957).

Distribution: The type locality is Royal Sound, Kerguelen Is. This species was also recorded in Kerguelen Is. by Thiele (1912) in Observatory Bay and by Powell (1957) in a BANZARE localities between 4 and 150 m. Arnaud (1979) records it from Kerguelen Is. and points out that is another species with subantarctic distribution. Shells and the individual of this collection come from muddy bottoms, agreeing with Arnaud (1979), who found this species in muddy bottoms and included it in the deposit-feeders.

Family Mytilidae Rafinesque, 1815
Genus *Aulacomya* Moerch, 1853

Aulacomya ater regia Powell, 1957

Mytilus magellanicus Thiele, 1912: 253.
Aulacomya ater regia Powell, 1957: 120, pl. 2, figs. 1-2; Powell, 1960: 174.

Material: 2 sp. (49.0 x 98.0 mm; 8.0 x 18.0 mm), D10; 6 sp. (50.98 x 112.31 mm - 12.72 x 26.83 mm), D12-D14; 1 sp. (46.06 x 105.42 mm) and 1 valve (30.51 x 56.82 mm), D16-D17; 3 sp. (50.57 x 106.85 mm - 47.74 x 115.64 mm), D19-21; 1 sp. (41.63 x 85.51 mm), D29-25; 1 sp. (1.4 x 2.2 mm), D35.

Remarks: This species has the same shape as *Aulacomya ater ater*, but it is distinguishable by the number of ribs in the umbonal area (POWELL, 1957). In our Kerguelen individuals the number of ribs reaches a range of 9-14, while the range known for this subspecies is 10-13 (POWELL, 1957). This author described the Kerguelen population as a new subspecies upon the umbonal rib count (POWELL, 1957). The greater individual found in this work was 115.6 mm x 47.7 mm with 14 ribs in the umbonal area and golden brown coloration, features that agree with the subspecies described by Powell. ARNAUD (1974 and 1979) do not maintain this subespecies for Kerguelen populations.

Distribution: The type locality is Bras Bolinder, Kerguelen Is. THIELE (1912) records this species in Observatory Bay, Kerguelen Is. and POWELL (1957) in some BANZARE stations at Kerguelen.

Family KELLIIDAE Forbes and Hanley, 1958
Genus *Pseudokellia* Pelseneer, 1903

Pseudokellia cardiformis (Smith, 1885) (Fig. 34)

Kellia cardiformis Smith, 1885: 202, pl. 11, figs. 6-66.
Pseudokellia stillwelli Hedley, 1916: 31, pl. 3, figs. 38, 39; Powell, 1960: 178; Egorova: 1982: 72, figs. 326, 327.
Pseudokellia cardiformis: Powell, 1957: 122; Powell, 1960: 178; Dell, 1990: 40, figs 66, 67.

Material: 3 valves (4.5 x 4.6 mm), D8; 1 sp. (2.5 x 3.0 mm), D25-29.

Remarks: Only one young individual was found alive in this collection. It is a whitish, circular and very thin shell. In the empty shells we can see the hinge composed of two cardinal teeth in the left valve and only one in the right, ligament is internal and it is situated just below the umbo.

Distribution: The type locality is Royal Sound in Kerguelen Is. HEDLEY (1916) records *P. cardiformis* in Adelie Land and Davis Sea, POWELL (1957) found it in BANZARE localities and EGOROVA (1982) records this species in the Results of the Soviet Antartic Expedition. According to DELL (1990) this species has a probably circumantarctic distribution. Antarctic Peninsula, South Sethlands, South Sandwich Is., South Georgia, Shag Rocks, off the Falkland Is., Kerguelen Is. and Ross Sea. This author records *P. cardiformis* in the Ross Sea at 51-377 m. CATTANEO-VIETTI *ET AL.* (2000) record *P. cardiformis* in Terra Nova Bay, Ross Sea between 49 and 544 m. Our specimen was collected in muddy bottom with *Rhodophyces* from depths of 30-50 m.

Family GAIMARDIIDAE Hedley, 1916
Genus *Gaimardia* Gould, 1852

Gaimardia trapesina trapesina (Lamarck, 1819) (Fig. 35)

Gaimardia trapesina Hedley, 1916: 25, with the following synonyms: *Modiolarca crassa, cannellieri, lephayi, savatieri, fuegiensis* and *hahni*, all of Rochebrune and Mabille, 1889: 120-123; Powell, 1957: 122; Branch *et al.*, 1991: 47, 52, 61, 63.

Gaimardia trapesina trapesina: Powell, 1960: 179

Material: 79 sp. (15.56 x 22.39 mm – 5.5 x 8.8 mm), D5; 1 valve (0.6 x 0.8 mm), D9; 1 broken valve, D19-21; 54 sp. (16.52 x 22.56 mm – 96.54 x 10.39 mm), D25-D29.

Remarks: According to BRANCH *ET AL.* (1991) this species can reach up to 25 mm of length. The largest individual found by us in Kerguelen Is. was 23 mm length. *G. trapesina* has a fragile shell, with a coloration pale buff to brown and the typical rostrum of *trapesina*, we found most of the samples associated to the kelp. Samples found by POWELL (1957) in Kerguelen Is. are shorter than 10 mm, while the largest Macquarie I. samples that were found by Hedley are 19 mm (HEDLEY 1916). This author remarks that Lamarck´s type is 22 mm and BRANCH *ET AL.* (1991) point out that this species is usually attached to the blades of the kelp *Macrocystis pyrifera*, and records this bivalve in sand with depth range of 5-200 m.

Distribution: The type locality of *G. trapesina* appears to be unknown, probably Magellan province (POWELL 1960). HEDLEY (1916) records the *coccinea* variety in Macquarie I. This species has almost a subantarctic distribution following the *Macrocystis pyrifera* distribution (ARNAUD, 1979; HAREAU and ARNAUD, 1984). It has been recorded in the Magellanic province, including Falkland Is., Kerguelen Is. and Crozets (POWELL 1960). BRANCH *ET AL.* (1991) records this species from Marion and Prince Edward Is. between 5 and 200 m. Our samples come from Port aux Français, Channer I., Suhm I., Glénan Is. and Passe de Buenos Aires and were collected in muddy botttons whit spicles and *Marocystis* from depths of 23-50 m.

Family NEOLEPTONIDAE Thiele, 1934
Genus *Neolepton* Monterosato, 1875
Neolepton umbonatum (Smith, 1885) (Fig. 36)

Davila (?) *umbonata* Smith, 1885: 82, pl. 6, figs 1, 1b.
Notolepton umbonatum: Powell, 1955: 37; Powell, 1957: 123; Powell, 1960: 180.
Neolepton umbonatum: Branch *et al.*, 1991: 54; Linse, 1997: 57; Linse and Brandt, 1998: 884, 887.

Material: 2 valves (2.0 x 2.0 mm; 1.5 x 2.0 mm), D5; 1 sp. (3.5 x 5.0 mm), D6; 1 sp. (3.0 x 4.0 mm), D7; 5 valves (4.5 x 5.5 mm – 3.0 x 4.0 mm), D8.

Remarks: SMITH (1885) described this species from individuals found in Balfour Bay and Royal Sound in Kerguelen Is. and places it in the genus *Davila*, although he points out that it did not correspond in the hinge with the typical *Davila*. Later this species has been recorded under different genera. DELL (1964a in DELL 1990) places a specimen of *Lepton parasiticum* from Kerguelen in the genus *Neolepton* and considers this one as a synonymy of *Notolepton*. BRANCH *ET AL.* (1991) describe the shell of *N. umbonatum* as more longer than high, a little inflated and with a prominet umbo, these shell features agree with our individuals.

Distribution: The type localities of this species are Balfour Bay and Royal Sound in Kerguelen Is. POWELL (1955) records it in Auckland Is. and later records this species in BANZARE material POWELL (1957). BRANCH *ET AL.* (1991) records it in Marion and Prince Edward Is., 10 to 750 m. LINSE (1997) found this species in the Beagle Channel, 25 to 271 m. Our specimens were collected in muddy bottoms with an organogenic components (spicles) from depths of 23-65 m.

Family LIMIDAE Rafinesque, 1815
Genus *Limatula* Searles-Wood, 1839

Limatula cf. *pygmaea* (Philippi, 1845) (Fig. 37)

Lima pygmaea Philippi, 1945; Thiele, 1912: 251, pl. 17, figs. 6-8.
Limatula pygmaea: Powell, 1955: 27; Powell, 1957: 116; Powell, 1960: 176; Branch *et al.*, 1991: 50; Linse, 1997: 52; Linse and Brandt, 1998: 884.
Limatula cf. *pygmaea*: Arnaud, 1979: 222; Hareau and Arnaud, 1984: 466.
Limatula (*Antarctolima*) *pygmaea*: Dell, 1990: 55.

Material: 3 sp. (8.51 x 11.26 mm – 5.54 x 7.22 mm), D3-D4; 1 broken valve, D5; 1sp. (8.55 x 11.26 mm) and 11 valves (11.0 x 14.28 mm – 4.84 x 6.11 mm), D8; 1 valve (9.31 x 12.37 mm), D9; 12 valves (11.33 x 14.49 mm – 10.16 x 14.06 mm), D10; 2 sp. (11.30 x 14.85 mm; 7.39 x 9.59 mm), D19-21; 29 sp. (12.67 x 16.42 mm – 6.89 x 8.76 mm) and 2 valves (12.5 x 16.1 mm; 10.5 x 12.8 mm), D25-D29.

Remarks: The greatest specimen of this collection reaches 16.5 mm, is a white broadly oval shell with radial ridges and growth rings. POWELL (1957) points out that it is better to maintain the name *pygmaea* for the Kerguelen shells until comparative material can be examined. ARNAUD (1979) and HAREAU and ARNAUD (1984) point out that Stuardo (1968) concluded that the Kerguelen specimens of *L. pygmaea* defered of *L. pygmaea* (Philippi, 1845) but the new name could not be employed because remains unpublished. DELL (1990) explains that "the relationship of *L. pygmaea* and *L. ovalis* will be better understood when more material of eastern Antarctica can be critically compared with material of the full range of *L. pygmaea*". We consider that our specimens are very close to *L. pygmaea* (Philippi, 1845) in measurements and shell characteristics but we agree with Arnaud's nomenclature and consider this species as cf.

Distribution: It has a wide distribution range and has been recorded from Southern Chile and the Magellanic region to Kerguelen and Macquarie Is. in depths of 6 to 598 m (DELL 1990). BRANCH *ET AL.* records this species from Marion and Prince Edward I. between 38 and 240 m and recently it has been collected in the Beagle Channel by LINSE (1997) and LINSE AND BRANDT (1998), 5 to 665 m. HAREAU and ARNAUD (1984) included, in the distribution range of Stuardo's species, Crozet and Kerguelen Is. and pointed out that some of *L. pygmaea* (Philippi, 1845) records could be about Stuardo's species. We found this species in muddy and sandy bottoms from depths of 23-50 m.

Family CARDITIDAE Fleming, 1828
Genus *Cyclocardia* Conrad, 1867

Cyclocardia astartoides (Martens, 1878) (Fig. 38)

Cardita astartoides: Smith, 1885: 212, pl. 5, figs. 2-2a; Thiele, 1912: 230, pl. 18, fig. 10.
Venericardia astartoides: Hedley, 1916: 30, pl. 3, figs. 33, 34.
Cyclocardia astartoides: Powell, 1957: 121; Powell, 1958: 177; Powell, 1960: 177; Egorova, 1982: 72, figs. 328, 329; Dell, 1990: 59, figs. 98, 99; Cattaneo-Vietti *et al.*, 2000: 176.
Cyclocardia antarctica: Powell, 1960: 177.

Material: 4 sp. (23.93 x 30.04 mm – 8.0 x 9.5 mm) and 5 valves (34.2 x 43.5 mm – 8.8 x 11.5 mm), D3-D4; 1 sp. (4.5 x 5.2 mm) and 9 valves (14.44 x 18.15 mm – 6.42 x 6.74 mm), D5; 1 sp. (30.70 x 36.54 mm), D8; 1 valve (26.07 x 29.43 mm), D10; 52 valves (29.0 x 37.2 mm – 18.5 x 22.2 mm), D12-D14; 1 sp. (23.51 x 27.16 mm) and 2 valves (14.45 x 16.78 mm), D16-D17; 8 sp. (31.02 x 36.34 mm – 17.34 x 20.03 mm) and 12 valves (31.44 x 39.17 mm – 11.25 x 13.31 mm), D19-21; 5 sp. (23.0 x 27.7 mm - 9.42 x 10.61 mm) and 5 valves (27.21 x 32.19 mm – 8.28 x 9.95 mm), D25-D29.

Remarks: POWELL (1960) records three types of *Cyclocardia* in Antarctic waters: *antarctica*, *astartoides* and *intermedia* that later DELL (1964a in DELL, 1990) suggests as the variants of the widely distributed *C. astartoides*. Afterwards NICOL (1966 in DELL, 1990) reiterates the differences between the type *antarctica* and typical form *astartoides* and gives the ratio of length to height of this types. DELL (1990) revises the ratios and other characteristics of a series of specimens belonging to *astartoides* and concludes that until a better evidence is found, *antarctica* is based on a single aberrant specimen of *astartoides*.

Distribution: The type locality is Kerguelen Is. *C. Astartoides* has been recorded from Kerguelen and between Kerguelen and Heard Is. (SMITH, 1885; THIELE, 1912; POWELL, 1957), Davis Sea and Shackleton Ice-shelf (HEDLEY, 1916), Enderby Land and Adelie Land (POWELL 1958) and Terra Nova Bay, Ross Sea (CATTANEO-VIETTI *ET AL.*, 2000). Moreover it has been recorded from South Shetlands, South Orkneys, South Sandwich Is., South Georgia, Bouvet I., Ross Sea and Kerguelen (see DELL 1990). This author points out that it is a common species in the Ross Sea, 18-1674 m. In this collection it is one of the characteristic bivalves, appearing in muddy and sandy bottoms with organogenic components and algae from depths of 30-50 m.

Family HIATELLIDAE Gray, 1824
Genus *Hiatella* Daudin, 1801

Hiatella cf. *antarctica* (Philippi, 1845) (Figs. 39, 40)

Saxicava antarctica Hedley, 1916: 33.
Hiatella cf. *antarctica*: Powell, 1955: 44.
Hiatella antarctica: Powell, 1957: 124; Powell, 1960: 183.

Material: 1 sp. (19 mm x 8.2 mm), D3-D4.

Remarks: This species has a very variable shape and POWELL (1957) ascribes all irregular Subantarctic and Antarctic *Hiatella* to *antarctica*. HAREAU and ARNAUD (1984) point out that determination of South hemisphere *Hiatella* is uncertain and consider the similarity between this species and *H. arctica* (Linné, 1767). This collection have only one individual, found in Passe de Buenos Aires. It is elongate (19 mm x 8.2 mm), slightly gaping with concentric growth rings and two rows of little spines only visible in the anterior dorsal margin. This shell is white with pale brown deciduous periostracum, ligament external and one cardinal tooth in the right valve. We have not enougth data on which to base a judgement and for this reason we consider this species as cf.

Distribution: The distribution range can not be critically established with the specific discusions existing. In this collection there is one specimen collected in muddy bottoms with organogenic components from a depth of 42 m.

Family LATERNULIDAE Hedley, 1918
Genus *Laternula* Röding, 1798

Laternula elliptica (King and Broderip, 1831) (Fig. 41)

Anatina elliptica: Smith, 1885: 76; Thiele, 1912: 256.
Laternula elliptica: Hedley, 1916: 27; Powell, 1957: 120; Powell, 1960: 185; Egorova, 1982: 68, figs. 197-299; Dell, 1990: 62, fig. 106; Branch *et al.*, 1991: 51; Cattaneo-Vietti *et al.*, 2000: 176.

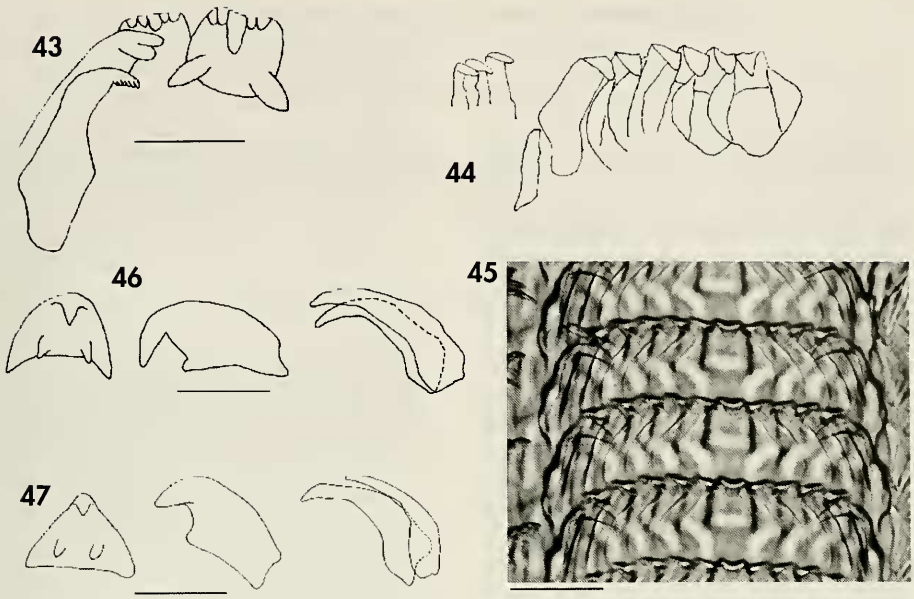

Figure 43: *Eatoniella k. kerguelenensis*, radula. Figure 44: *Margarites* cf. *porcellana*, radula. Figure 45: *Margarites violacea*, radula. Figure 46: *Falsilunatia* cf. *dalicatula*, radula. Figure 47: *Falsilunatia* cf. *xantha*, radula. Scale bars, 43: 25 µm, 44-47: 100 µm
Figura 43: Eatoniella k. kerguelenensis, *radula. Figura 44:* Margarites cf. porcellana, *radula. Figura 45:* Margarites violacea, *radula. Figura 46:* Falsilunatia cf. dalicatula, *radula. Figura 47:* Falsilunatia cf. xantha, *radula. Escalas, 43: 25 µm, 44-47: 100 µm.*

Material: 1 broken valve, D7; 1 sp. (12.42 x 22.07 mm), D9; 2 sp. (28.0 x 45.0 mm; 9.77 x 16.67 mm) and 1 valve (33.61 x 60.80 mm), D16-D17; 2 valves (28.27 x 50.05 mm; 21.82 x 37.91 mm), D18; 2 sp. (13.85 x 27.37 mm; 9.43 x 22.15 mm), D19-21; 5 sp. (21.88 x 37.86 mm – 8.5 x 17.5 mm), D25-D29; 3 sp. (12.41 x 20.53 mm - 10.8 x 17.5 mm), D31-D32; 1 valve (19.65 x 36.59 mm), M14.

Remarks: This species of bivalve is easy to recognize by its shell and the big siphon. *L. elliptica* is an abundant shallow waters species, DELL (1990) remarks this species as probably commoner in depths shallower than 20 m. CATTANEO-VIETTI *ET AL.* (2000) found in the Terra Nova Bay a specimen with a maximum size of 83 mm, whereas in this collection the maximum size is 60.8 mm.

Distribution: The type locality is South Shetlands. *L. elliptica* has been recorded from Betsy Cove and Royal Sound (SMITH, 1885), Observatory Bay (THIELE, 1912) and Commonwealth Bay (HEDLEY, 1916) all in Kerguelen. POWELL (1957) also records this species in a series of BANZARE localities at Kerguelen Is. *L. elliptica* has a completely circumantarctic distribution, being known from Antarctic Peninsula, South Shetlands, South Orkneys and South Sandwich Is., South Georgia and Kerguelen (DELL, 1990). BRANCH *ET AL.* (1991) find this species in Marion and Prince Edward Is. CATTANEO-VIETTI *ET AL.* (2000) record this specie in Terra Nova Bay, Ross Sea. Individuals of this collection have been collected in muddy and sandy bottoms with *Rhodophyces* from depths of 0,1-65 m.

Family THRACIIDAE Stoliczka, 1870
Genus *Thracia* Sowerby, 1823

Thracia meridionalis Smith, 1885 (Fig. 42)

Thracia meridionalis Smith, 1885: 68, pl. 6, figs. 4-4b; Hedley 1916: 29; Powell, 1958: 178; Powell, 1960: 184; Egorova, 1982: 69, figs. 304-306; Dell, 1990: 63, figs. 109, 110, 111; Branch *et al.*, 1991: 51; Linse, 1997: 61; Linse and Brandt, 1998: 884; Cattaneo-Vietti *et al.*, 2000: 176.
Mysella truncata Thiele, 1912: 230, pl. 18, fig. 18.
Mysella frigida Thiele, 1912: 231, pl. 18, fig. 19.

Material: 1 valve, D9; 3 valves (15.7 x 20.8 mm - 14.3 x 20.5 mm), D25-D29.

Remarks: This characteristic bivalve is easy to recognize, besides its shell features, by its pallial sinus and its muscle scars. Although this species is a common antarctic bivalve, in this collection *T. meridionalis* is only represented by empty valves. CATTANEO-VIETTI *ET AL.* (2000) found, in Terra Nova Bay, Ross Sea, a specimen with a length of 25 mm.

Distribution: The type locality is Royal Sound in Kerguelen Is. DELL (1990) points out that it is another species with probably circumantarctic distribution and records it in the Antarctic Peninsula, South Shetland, South Orkneys, South Sandwich Is., South Georgia, Magellanic region, Falkland Is., Kerguelen, Marion and Prince Edward Is. and in the Ross Sea with a bathymetric range of 5-752 m. This author remarks that it is more common in relatively shallow depths. BRANCH *ET AL.* (1991) collect this species from Marion and Prince Edward Is., 15-120 m. LINSE (1997) records this species in the Beagle Channel. CATTANEO-VIETTI *ET AL.* (2000) record *T. meridionalis* in Terra Nova Bay, Ross Sea, 30-123 m. In this collection there are two shells collected in mud with *Rhodophyces* from depths of 30-50 m.

CONCLUSIONS

A total of 843 individuals was identified belonging to 44 species of molluscs. Twelve of these species are bivalves with a total of 434 individuals and thirty-two species are gastropods with a total of 409 individuals. All the species are characteristics of shallow waters, being the samples collected in a maximum depth of 90 m.

Among the bivalves, the most abundant species are *Gaimardia t. trapesina* with 132 individuals and *Limatula* cf. *pygmaea* with 35 individuals and 27 valves. Whereas among the gastropods the most abundant species are *Margarites* cf. *porcellana* with 48 individuals and 34 shells and *Perissodonta mirabilis* with 40 individuals and 19 shells. Only one species of bivalve, *Thracia meridionalis*, is represented by empty valves whereas three species of gastropods, *Puncturella conica*, *Iothia coppingeri* and *Sinuber sculpta*, are represented by empty shells. The small size of most of the species of this collection must be emphasized. There are a few exceptions like the limpets *Nacella* (*Patinigera*) *edgari* and *N. delicatissima* or *Perissodonta mirabilis* and among the bivalves *Aulacomya ater regia* and *Laternula elliptica*.

In this collection, there are one species of bivalve and two of gastropods that are endemics of the Kerguelen Is., the bivalve *Aulacomya ater regia*, and the gastropods *Nacella* (*Patinigera*) *edgari* and *Prosipho propinquus*. This latter species have not been recorded after POWELL (1957) and CANTERA and ARNAUD (1985) included it in the faunal list. There are four species of bivalves that ARNAUD (1979) and HAREAU and ARNAUD (1984) pointed out that have a subantarctic distribution, these species are: *Yoldia* (*Aeqvi-*

yoldia) *isonota, Malletia gigantea, Gaimardia t. trapesina* and *Limatula* cf. *pygmaea.*

Most of the species formerly considered as endemic of Kerguelen Is., have been recorded from Crozet Is. by CANTERA and ARNAUD (1985): *Eatoniella k. kerguelenensis, Eumetula ornata, Pareuthria chlorotica, Spirotropis studeriana, Trophon septus* and *Admete specularis.* There are only one species of gastropod (*Iothia coppingeri*) with a circumantarctic distribution whereas there are four species of bivalves with this distribution: *Yoldia* (*Aeqviyoldia*) *eightsi, Laternula elliptica, Thracia meridionalis* and *Pseudokellya cardiformis.* The two latter species are recorded by DELL (1990) as with a probable's circumantarctic distribution.

If the specific identity of *Margarites* cf. *porcellana,* one of the most abundant gastropod is confirmed, it would be a new record for the Kerguelen Is., since its the type locality is off Marion I. and its recent records Marion and Prince Edward Is. (BRANCH *ET AL.*, 1991).

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